

FLIGHT

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AND AIRSHIPS

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1932

- Mar. 4. Leicestershire Ae.C. Annual Ball.
- Mar. 5. Lloyd's Register Cricket Club Annual Reunion and Dinner, May Fair Hotel.
- Mar. 5. No. 55 Sqdn. R.A.F., Reunion Dinner, Park Lane Hotel, W.I.
- Mar. 5. 84th Wing R.A.F. Reunion Dinner, National Hotel, W.C.1.
- Mar. 5. Rugby: Army v. R.N., at Twickenham.
- Mar. 9. Rugby: R.A.F. v. Oxford University, at Oxford.
- Mar. 10. "Results with the New Wind Tunnel at N.P.L.," Lecture by E. F. Relf, before R.Ae.S.
- Mar. 10. Eastern Counties Ae.C. Clubhouse Opening, Blue Barns Aerodrome.
- Mar. 10. Danum Ae.C. Inaugural Dinner and Dance, at Danum Hotel, Doncaster.
- Mar. 12. Rugby: De Havilland v. Nuneaton Old Edwardians at Stag Lane Aerodrome.
- Mar. 16. "Development of Naval Air Work," Lecture by Commodore N. F. Laurence, before R.U.S.I.
- Mar. 23. "High-Speed Flying," Lecture by Sqdn.-Ldr. A. H. Orlebar, before R.U.S.I.
- Mar. 24-28. London Gliding Club's Meeting at Dunstable.
- Mar. 30. R.Ae.C. Annual General Meeting.
- Apr. 1. Entries close at ordinary fees for King's Cup Race.
- Apr. 1. Opening of Greek Aero Show, Athens.
- Apr. 2. Rugby: Army v. R.A.F., at Twickenham.
- Apr. 2-10. National Aircraft Show, Detroit, U.S.A.
- Apr. 7. "Wing Construction," Lecture by H. J. Stieger, before R.Ae.S.
- Apr. 13. "The North-West Frontier of India," Lecture by Maj.-Gen. S. F. Muspratt, before R.U.S.I.
- Apr. 14. "Aero Engine Accessories," Lecture by W. L. Taylor, before R.Ae.S.
- Apr. 21. "Air Port Development," Lecture by N. Norman, before R.Ae.S.
- May 1. Entries close at double fees for King's Cup Race.
- May 7. Heston Spring Cruise begins.
- May 14-15. Skegness Air Pageant.
- May 15. Husbands Bosworth Flying Meeting.
- May 16. Northampton Ae.C. Flying Meeting.
- May 18. Household Brigade Flying Club Meeting, Heston.
- May 21. Morning Post Race, Heston.
- May 21-23. Scottish Flying Club Display, Moorpark, Renfrew.
- May 22-30. Conference of Transoceanic Aviators at Rome.

EDITORIAL COMMENT



RIGADIER - GENERAL SPEARS, Member for Carlisle, asked a question of the Under-Secretary of State for Air on February 25 about the composition of the British Forces in Palestine, which on first reading seems about as intelligent as an inquiry as to whether Queen Anne were still in the land of the living. Presumably the monthly Air Force List finds its way into the library of the House of Commons, and, if it does not, a copy only costs eighteen pence. On page 72 of that useful little publication the gallant member could have learnt for himself that the forces in Transjordan and Palestine consist of No. 14 (Bomber) Squadron, one flight of No. 6 (Bomber) Squadron, No. 2 Armoured Car Co. of the R.A.F., the 1st Battn. of the King's Own Royal Regiment and the 1st Battn. of the Royal Warwickshire Regt., with ancillary services. There is no mystery or "Hush-hush!" about the composition of this force, and at first sight there seems no reason why Gen. Spears should have troubled a Minister to supply information which it would have been so very easy for him to obtain for himself.

Nevertheless, despite the reflections of the immortal Private Willis on "dull M.P.s in close proximity all thinking for themselves," which was what "no man could face with equanimity," the questions asked are not always quite so fatuous as they appear. The question of Gen. Spears was like a hornet; it had the sting in the tail, i.e., in the supplementary question. "Are we to understand," asked the gallant member, "that the Air Ministry has itself started independent mechanised forces?" Again the query resembles one about the health of Good Queen Anne, for there is nothing novel about the armoured cars of the R.A.F. in the Middle East and in Iraq. They have been doing good service for a number of years. But the question roused the feelings which apparently Gen. Spears wished to rouse, for Mr. Attlee was on his feet at once, asking whether we are to have a complete mechanised force,

separate from the Army, under the Air Force. Sir Philip Sassoon gently quelled Mr. Attlee, but who knows how far the train of thought thus aroused will travel? On March 1 Gen. Spears came into the open and called the R.A.F. cars "a fundamental departure from previous policy." Again Sir Philip was equal to the occasion, pointing out that the system had worked successfully for 10 years.

The meaning of it all seems to be that one school of Army thought holds that every fighting man or vehicle which moves upon the ground ought to be provided by the War Office. With that school of thought we most emphatically disagree. Responsibility should be divided among the three Ministries which manage the fighting services according to the limits of naval defence, military defence, and air defence. The element on which or through which a certain vehicle moves is of less importance. As the Air Ministry has been placed in charge of the defence of Iraq, Palestine, and Transjordan, it is far the best arrangement that it should provide its own armoured car units, which have to work in close co-operation with the aircraft. Of course, if this argument were pushed to its logical conclusion, the R.A.F. ought also to provide the two infantry battalions for Palestine and Transjordan. That might not be a convenient arrangement at the moment, though plenty of precedent could be found for it in the history of the Royal Marines, a force of artillery and infantry which was raised by the Admiralty for its own purposes, and was not provided by the War Office. To suggest, as Gen. Spears and Mr. Attlee seemed to do, that the armoured cars should be taken from the Air Force and placed under the Army, is evidence of a foolishly reactionary mind.

Turning from the Middle East to the Air Defence of Great Britain, we find a glaring case where reaction still prevails and where progress should be substituted. The elements of the air defence of London consist briefly of aircraft, an Observer Corps, searchlights, and anti-aircraft guns. The aircraft and the Observer Corps are raised and maintained by the Air Ministry, but the searchlights and guns are provided by the War Office. They are under the Air Ministry for training and operations, but they are paid for by the War Office. This divided control has had harmful results, as divided control almost always has, and a much-needed reform in our defence system is to put these ground units completely in the hands of the Royal Air Force. To take this step would be in accordance with the principle mentioned above, that the Air Ministry should be responsible for all which concerns air defence. These guns and these lights serve no Army purpose. They are elements of air defence solely, and therefore they should be paid for out of the Air Estimates and should be manned by officers and men in the blue uniforms of the Royal Air Force. Whether these men should be regulars or should belong to the Auxiliary Air Force is a matter of secondary importance. At present they are manned by personnel of the Territorial Army, and so the easiest change to make would be to hand them over to the Auxiliary Air Force. Both these forces are raised by the Territorial Associations, and so the change could be effected with the minimum of trouble. The important practical point is that the Air Ministry should control the amount of money expended on making these ground units as efficient as possible in working

in the closest co-operation with the aircraft of the command A.D.G.B.

We find strong support for our views in "Air Defence," written by Maj. Gen. E. B. Ashmore in 1929. The author was in charge of the whole air defence of London in the last months of the war, and he is able to recount the defeat of the Gothas by his defence organisation. He himself remained in the Army, but none the less he holds that the anti-aircraft guns and the searchlights should belong to the Royal Air Force. We cannot do better than quote some passages from Chapter IX of his book. On page 133 he writes: "The organisation of the defences has, in fact, shown a fundamental weakness, due to divided responsibility between the War Office and the Air Ministry." He goes on to tell how in the early days of the scheme the then Air Minister, Sir Samuel Hoare, said that the Air Ministry should not be burdened with the administration of the ground troops. Gen. Ashmore comments: "This reluctance to accept the whole responsibility for the air defence, in all its implications, may, perhaps, be traced to a desire to avoid criticism. There are critics, not too well informed, who appear to think that the whole personnel for the Air Force should be permanently employed in the air, which is as if we asked that the whole of our railway staffs, including the porters and the board of directors, should spend their whole time on the footplate." He goes on to consider the influence of finance. In time of war finance has little control over training and efficiency. In peace it is different. In these hard times the Army Council is naturally reluctant to find money for a defence that has been removed from its control. "The ground troops have two masters pulling them in opposite directions; the R.A.F. only want them to be efficient, the War Office only want them cheap." Would Gen. Spears, we wonder, wish to see the armoured cars in Palestine and Iraq placed on the horns of a similar dilemma? Gen. Ashmore tells how the Observer Corps was handed over by the War Office to the Air Ministry. He adds: "The sooner the rest of the ground organisation, the anti-aircraft guns and searchlights follow the Observer Corps and come under the Air Ministry for administration and finance, as well as for operations, the better." He elaborates the necessity of the closest co-operation between the searchlights and the fighter aircraft. The latter are regulars, and the fighter squadrons cost a good deal of money, to keep them in the highest state of efficiency. Much of this expenditure must be wasted if the co-operating searchlights are not up to the mark. Their efficiency, whether they are to be regulars or Auxiliaries, must also depend largely on the amount of money which the responsible Ministry is willing to spend on them. The War Office, obviously, has no incentive to spend much, while the Air Ministry has every reason to strain after their efficiency. We do not, of course, mean to imply that at the moment these units are inefficient. They have aroused our admiration during past Air Exercises, and they are doubtless better now than they were in 1929 when Gen. Ashmore wrote his book. But so long as dual control remains, these ground units must be hampered by that unsound system. We shall never be on safe ground unless we make a sharp division between naval defence, military defence, and air defence, and organise our operational units on that basis.

Introducing



Pegasus

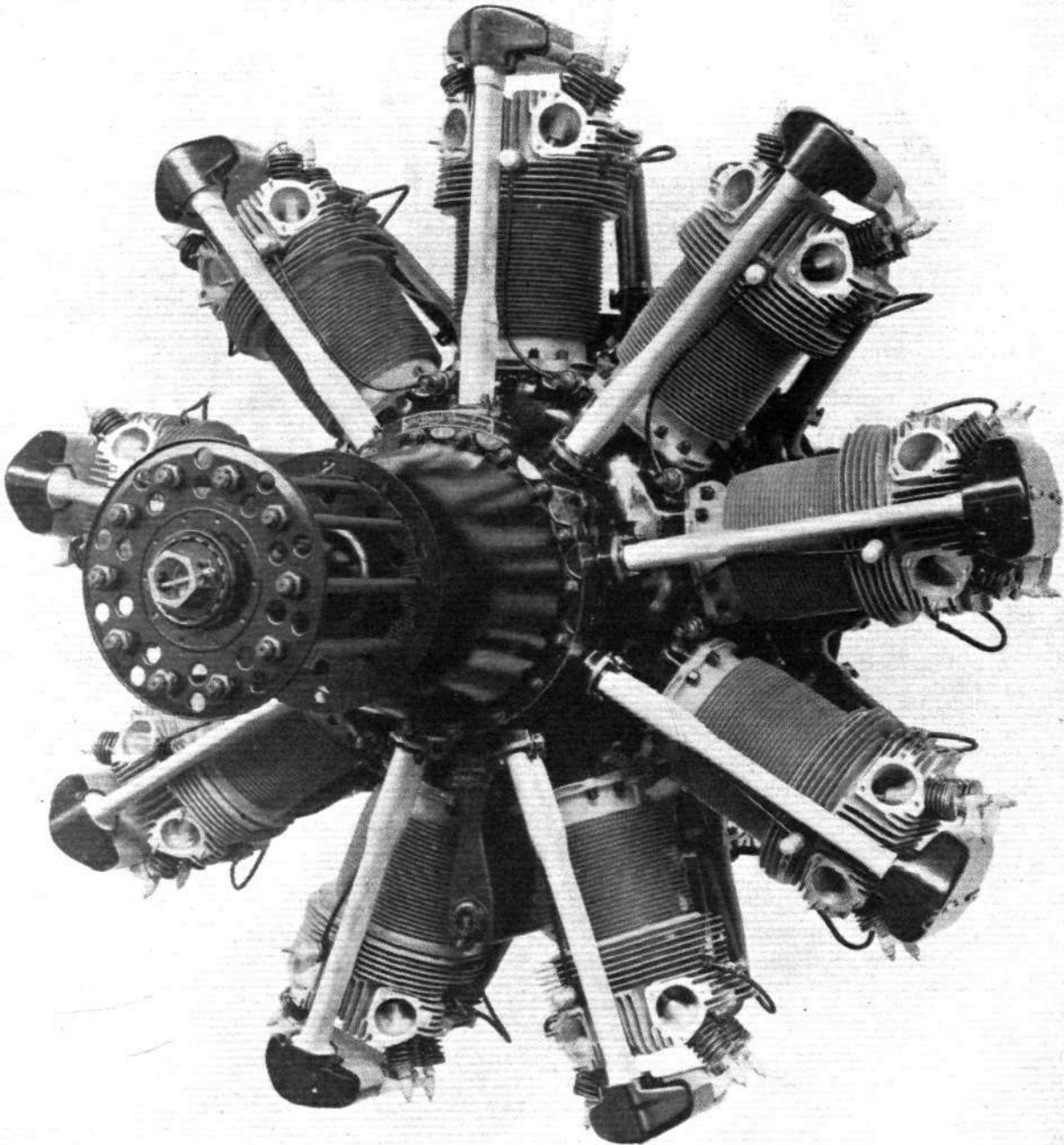
A New "Bristol" Engine Series

FROM the time, just after the war, when it was produced as the "Cosmos Jupiter," the Bristol "Jupiter" engine has undergone continuous development. Except for the A.B.C. radials, which did not attain any great degree of success, the "Jupiter" was the first British aero engine of this type, and when the engine was taken over for development by the Bristol Aeroplane Co., Ltd., its designer, Mr. Roy Fedden, and his chief assistant, Mr. Butler, accompanied it to Filton. It is not without significance that all the subsequent development work on the "Jupiter" has been carried out under the guidance of those to whom the engine owes its inception, and no better testimony to its qualities could

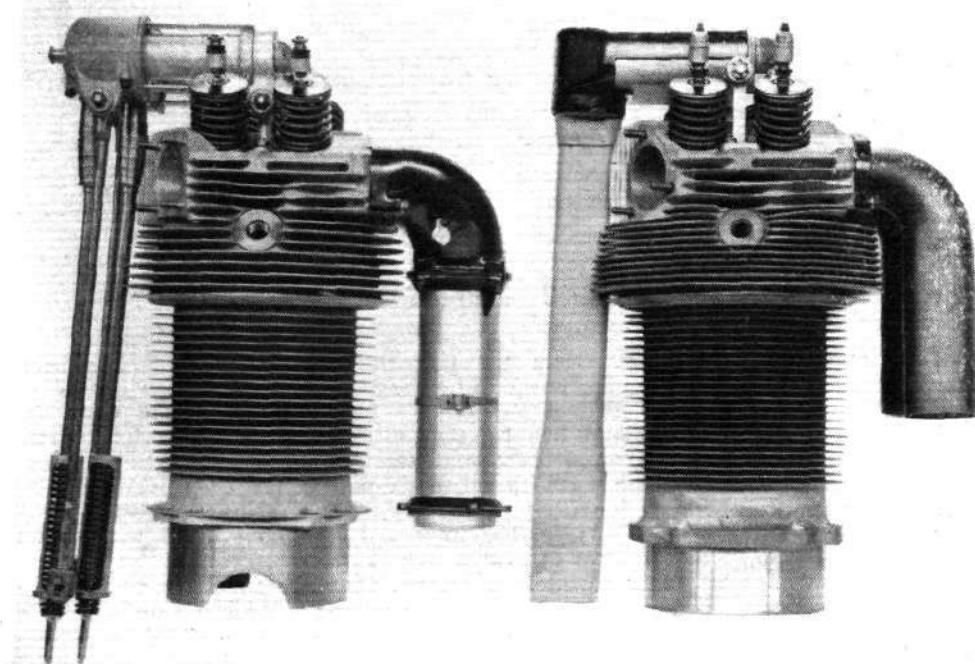
be found than the fact that the "Jupiter" has been built under licence in a large number of foreign countries.

The Bristol "Jupiter" has ever kept pace with the times, and has by stages become more powerful, partly by increased speed and partly by various stages of supercharging. Its thrust horse-power has been increased by fitting it with propeller reduction gearing, and some years ago it was further improved by being fitted with a set of cylinders of new design, known as the "F" type.

It is now felt, however, that the time has come for a complete re-design of the engine. Modern conditions are such that there is an increasing demand for supercharging, airscrew gearing, and drag-reducing cowlings, and mere



THE "PEGASUS": In this three-quarter front view may be seen the small airscrew gear casing, the oval tubes fairing the push rods, and the large air space between the cylinder heads and the enclosing covers of the overhead valve rockers.



OLD AND NEW: On the left a "Jupiter" cylinder and on the right a "Pegasus" cylinder. Note the closer spacing of the cooling fins.

modification was not thought sufficient to deal with modern requirements in a manner befitting a firm with the standing of the Bristol company. Mr. Fedden, with that faculty for looking ahead which is one of his outstanding characteristics, made up his mind that an entirely new engine series was the solution, and his views were shared by the directors of the Bristol Aeroplane Co., Ltd. The result is the "Pegasus" series of engines which forms the subject of this and subsequent articles.

For some years past the Bristol Aeroplane Company have had under development an engine series running parallel with the "Jupiter" and known as the "Mercury." The new "Pegasus" engine, while having a general family resemblance to the "Jupiter," is actually more akin to the "Mercury," and, in fact, the "Mercury" series IV may be regarded as the senior member of the new "Pegasus" family.

Before referring to the particular details in which the "Pegasus" engines differ from the "Jupiters," it may

be well to explain the identification system adopted to distinguish the various types. The new engines are divided into three general classes according to the altitudes at which they are designed to operate. These three classes are known as the *High Altitude*, the *General Purpose*, and the *Commercial*. Within each of the three classes is a further sub-division showing the degree of supercharging used and the airscrew reduction gear ratios employed. Letters are used to denote the degree of supercharging, S indicating full supercharging, M moderate supercharging, and L low duty supercharging. In addition to these three degrees of supercharging there are two forms of fan induction which are not regarded as supercharging, although one at least probably does at full speed give a small amount of supercharge effect. These two are known as the U and F respectively, U indicating a geared blower or fan, and F a fan mounted directly on the crankshaft and, of course, running at crankshaft speed.

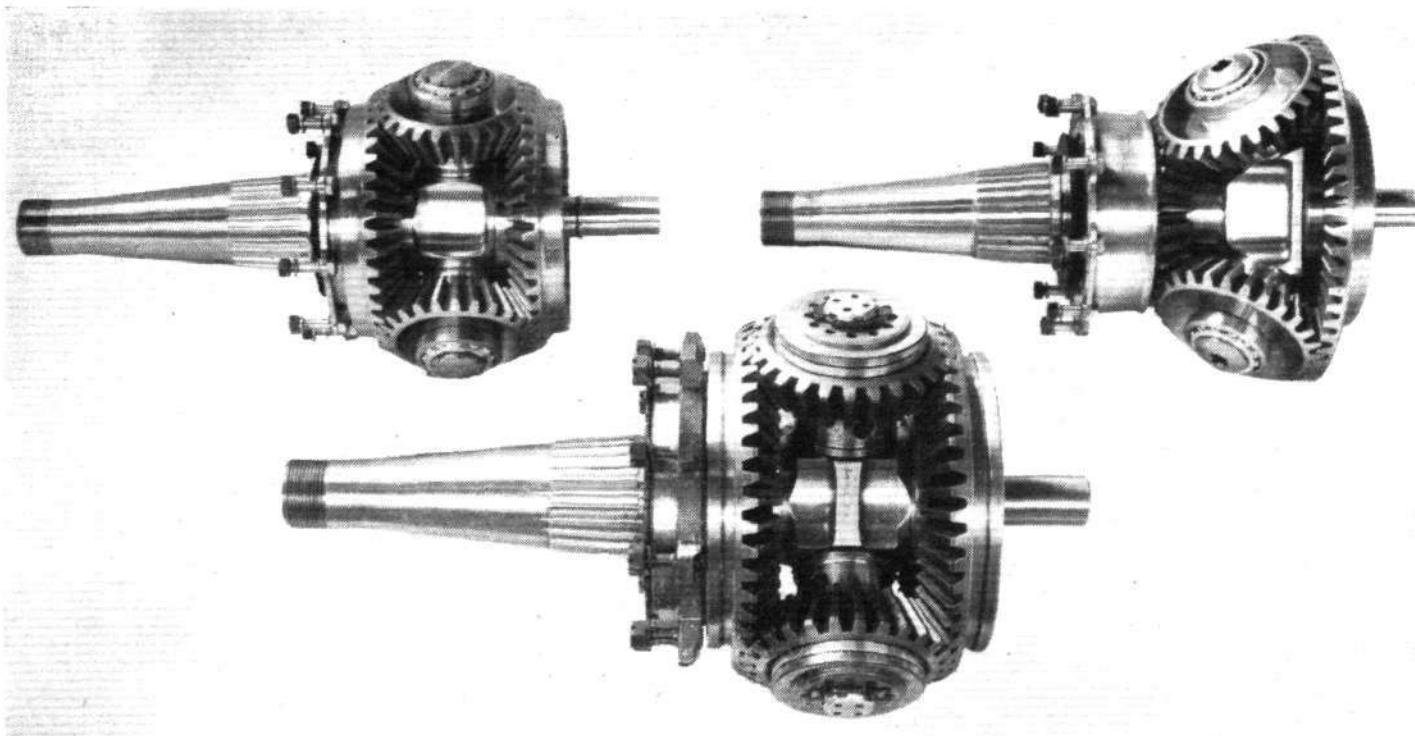
In each type, except the "Mercury IV," which is provided with but one ratio, there is a choice of two airscrew gear ratios, 0.655:1 and 0.5:1. These ratios are denoted by the figures 2 and 3 respectively. The "Mercury" is always fitted with the 0.655:1 ratio gear.

Summarising, we then have in the *High Altitude* class the "Mercury" IV-S2, the "Pegasus" S2 and the "Pegasus" S3, all fully supercharged and fitted with either of the two gear ratios mentioned.

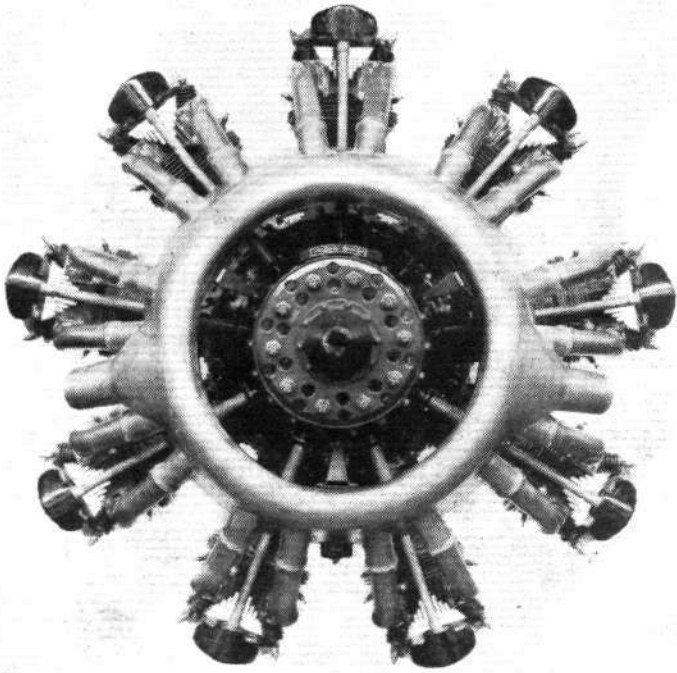
Again fitted with either of the two gear ratios in the *General Purpose* class, we have the "Pegasus" M2, M3, L2 and L3, moderately supercharged in the case of the M engines and low duty supercharge in the L engines.

In the *Commercial* class there are four combinations, the "Pegasus" U2, U3, F2 and F3, the U engines having geared induction blowers and the F engines engine-speed induction fans.

All engines in this series have a bore of 5.75 in. (146 mm.) and a stroke of 7.50 in. (190 mm.), and the compression



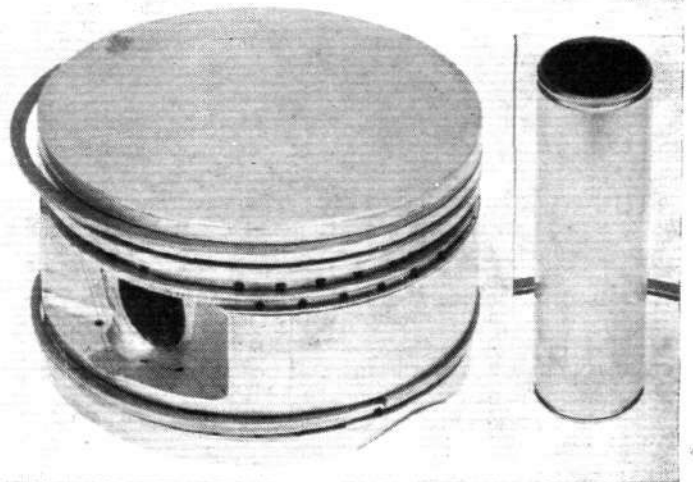
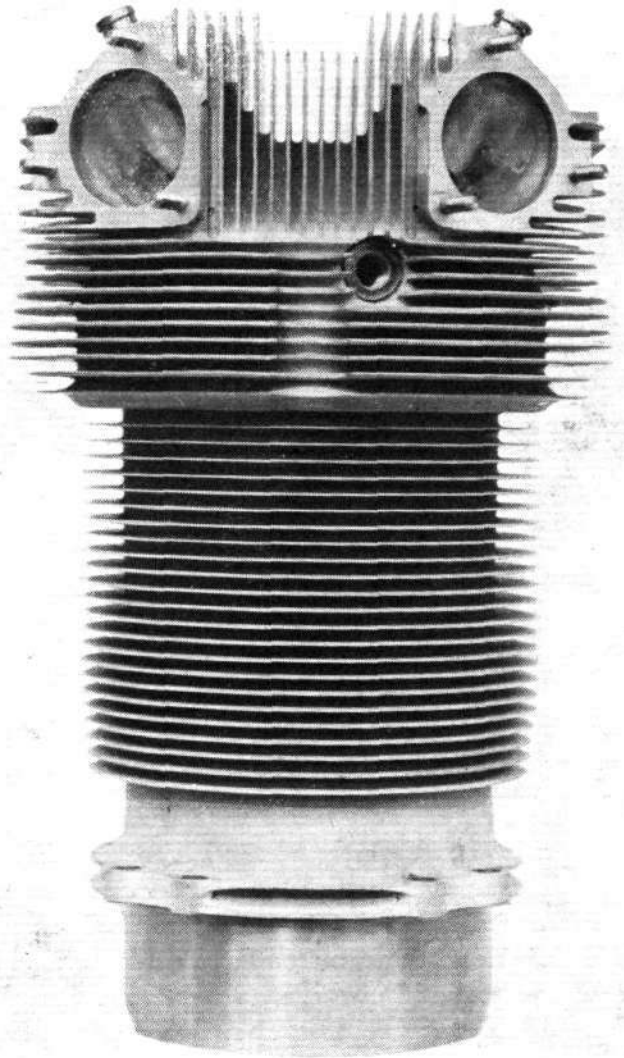
IMPROVING THE AIRSCREW REDUCTION GEAR: The lower photograph shows the old type gear. The new gears are shown above, the 0.50:1 being on the left and the 0.655:1 on the right. Note how the overall size has been reduced.



THE NEW EXHAUST COLLECTOR RING: Of good form to give reduced drag, this ring also increases engine performance by giving lower back pressures and temperatures.



NEW COMPONENTS: The cylinder shown on the right has 50 per cent. greater radiating surface than the "Jupiter" cylinder, due to a greater number of fins. The cylinder head has received special attention. Below is seen one of the new full-skirted pistons, with its gudgeon pin, and on the left the valve timing cam wheel and its drives.



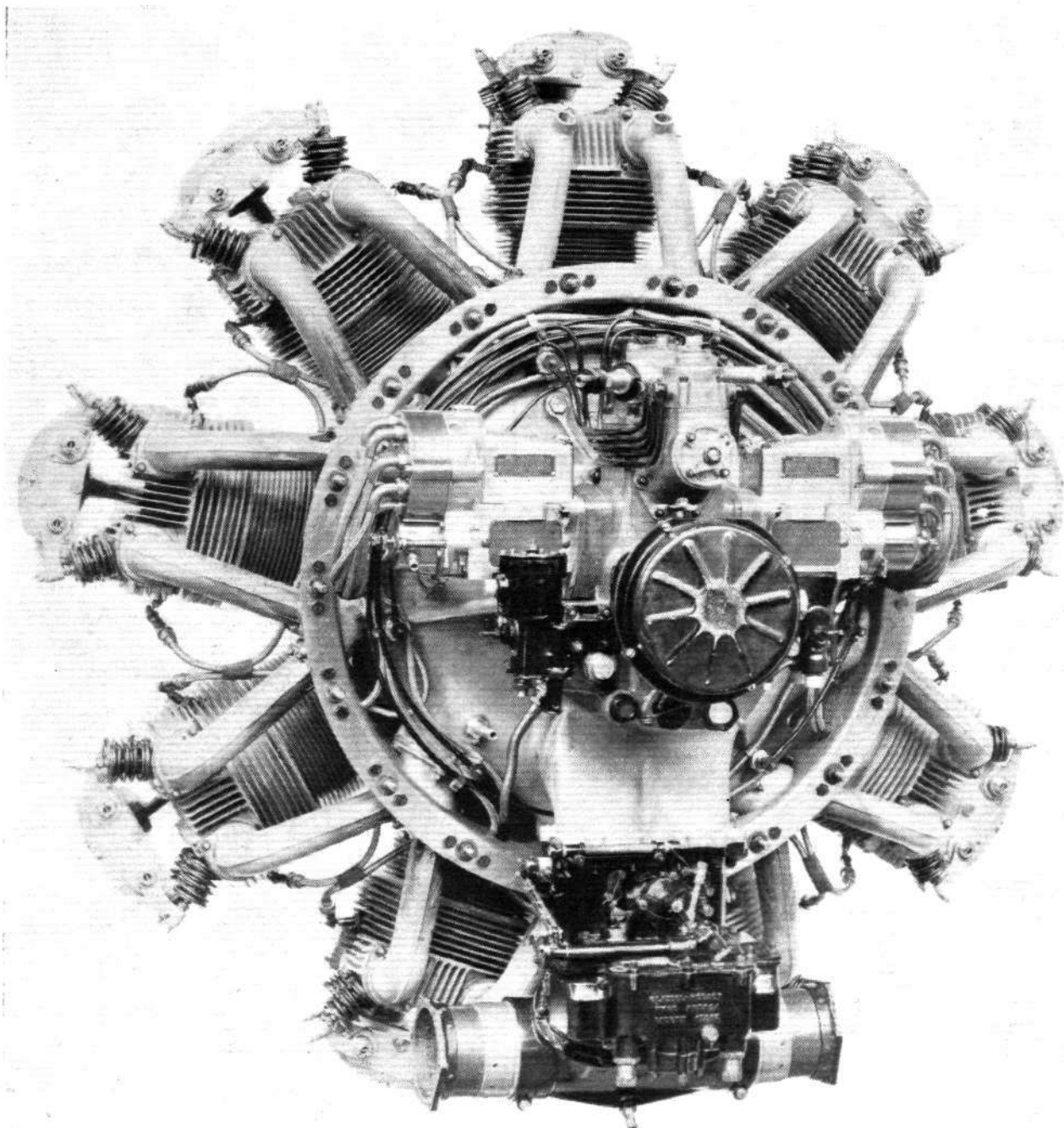
ratio of all types is 5.3:1. The airscrews are in all cases left-hand tractors.

The normal horsepowers of the various types at the rated altitude are as follows: "Mercury" IV-S2:505 at 13,000 ft. "Pegasus" S2 and S3:525 b.h.p. at 11,000 ft. "Pegasus" M2 and M3:555 b.h.p. at 4,500 ft. "Pegasus" L2 and L3:590 b.h.p. at 1,500 ft. "Pegasus" U2 and U3:550 b.h.p. at sea-level. And "Pegasus" F2 and F3:535 b.h.p. at sea-level. The tare weight varies from 920 lb. (418 kg.) for the

"Mercury" to 960 lb. (436 kg.) for the "Pegasus" S2 and S3 types.

New Features

We have not the space to deal this week with the detail design of the new Bristol series of engines, but doubtless our readers will like to know briefly wherein they mainly differ from the "Jupiters." Perhaps the most noticeable new feature in the "Pegasus" engines is the new style of cylinder design. The cylinders have been designed to deal effectively with cooling problems arising out of the



THE NEW BACK COVER : The components carried on the back cover have been rearranged, and are now very accessibly placed. The back covers of the "Mercury" and "Pegasus" engines are similar.

decreased rate of air flow under cowling rings, and the cooling area has been increased by some 50 per cent. by making the fins thinner and placing them closer together. The cylinder head has been re-designed so as to give a freer flow of air between the head and the valve rocker cover. The push rods are placed one behind the other and enclosed in oval casings, and twin induction pipes to each cylinder take the place of the single pipe with branch pipes at the top used in the "Jupiters."

The crank case has been considerably shortened, and a new type of mounting plate is now interposed between the back of the crank case and the supercharger unit. The arrangement is such that the supercharger unit can now be changed without disturbing the engine itself, so that should any user wish to substitute a full supercharger for a medium or low (or *vice versa*) this can be done very readily.

At the front of the engine one notices a reduction in size and a general compactness which is due to the re-designing of the airscrew reduction gear. On the "Jupiters" this was very much as the Farman designers had produced it, but in the "Pegasus" a much more

compact, and lighter, design has been evolved by the Bristol engineers, and the results are clearly brought out in a photograph. At the back of the engine one finds a completely re-designed rear cover, on which the components are mounted somewhat differently. For example, the magnetos now have their axes running transversely, whereas they used to be placed at an angle to the transverse plane of the engine. Internally a great change has been brought about by the use, in all models, of either an induction blower or a supercharger. The three-start induction spiral which was such a familiar feature of the "Jupiters" has disappeared.

Not, perhaps, an integral part of the engine, strictly speaking, but a very important accessory, is the new type of exhaust collector ring. This results in higher engine performance, due to smaller back pressure and lower temperatures, while the shape is such as to give a lower air drag. This can be further reduced by fitting a cowling ring, provision having been made for attaching this to the cylinder heads.

(To be continued.)

AIRPORT NEWS

CROYDON

THE Air Union service to and from Cannes is proving very popular, numbers of passengers travelling on this service. The saving of time over ordinary methods of transport is obvious, and it is to be hoped that the company will continue its running.

The proposed co-operation between Imperial Airways and Air Union has been postponed, at least for the coming summer season, much to the relief of many of the staff, who might have been faced with the prospect of a period of unemployment.

Among the passengers who have passed through Croydon during the week were Lord Londonderry, the Secretary of State for Air, Mr. Kaye Don, and Mr. G. Eyston, the famous racing motorists.

Imperial Airways Saturday afternoon joyrides increase in popularity week by week, and on Saturday last both "Helena," one of the Handley Page 42's, and a Handley Page W.10 were hard at it, coping with the demand. The charge per head is 7s. 6d. if booked at the Aerodrome, but slightly more if transport is from town. Passengers are given a really good flight for their money, averaging about 15 minutes' duration, and, unlike the smaller joy-riding companies, the flight is not confined to the borders of the Aerodrome, but covers a wide area. It is, no doubt, hitting the smaller companies, but nevertheless it is giving the public a genuine taste of air travel in its most luxurious form.

Cirrus-Hermes are very active, and have plenty of work in hand. Their hangar is full of private machines in for overhaul, and the engine shops are working at full pressure. Mr. Olney has just returned from a successful business trip to Scandinavia.

It is rumoured that the General Aircraft Co. have received a good order for the Monospar.

The new radio beacon will soon be in operation. The expression one hears from all pilots is, "Some poor Mutt is going to hit that thing soon." I certainly consider that the selected site seems to be wrong, because it is at the extreme westerly end of the now famous Croydon White Line. It is assumed that the white line was placed there to assist pilots in taking off and landing during conditions of bad visibility, but now that a wireless mast 100 ft. in height exists, it will probably make a few pilots think twice about it. It is understood that a few local broadcasting receiving sets will suffer from a certain amount of interference when the radio beacon is in service.

Large quantities of bullion have been despatched to the Continent every day this week by the Luft Hansa Company and Royal Dutch Air Line machines.

At the moment of writing the icy blast blowing suggests that we may look forward to another week of wintry conditions.

The Rollason Aviation Company continue making great strides with their school work, and one hears they intend joyriding this year on an even greater scale than 1931.

Surrey Flying Services are very busy with their "B" licence pupils, and quite a number will shortly be practising night landings.

The Air Ministry decision to stop all instructional work at Croydon after August of this year seems a great pity. One of the firms thus concerned has been on the Aerodrome for 13 years, and this is a sudden blow. It will mean that these firms will probably have to move elsewhere, which will result in a loss to H.M. Treasury of approximately £2,000 per annum in rents, etc. The Chancellor of the Exchequer should hardly be pleased about it.

The traffic figures for the week were:—Passengers, 901; freight, 40 tons.

P. B.

An Airport at Runnymede?

ACCORDING to the *Evening News*, London is to have a new airport in the near future. It is to be near historic Runnymede, about a mile from Staines and 20 miles from Charing Cross. It will be on the Troveney Manor estate, a stretch of level meadowland only a stone's throw from

Runnymede Halt, on the G.W.R. About a year ago the Middlesex County Council bought the old manor farm house and 400 acres of land for £23,000 for small holdings, and it is intended to use 172 acres of this for the airport, if the Ministry of Agriculture will agree. Already the land has been approved by the Air Ministry.

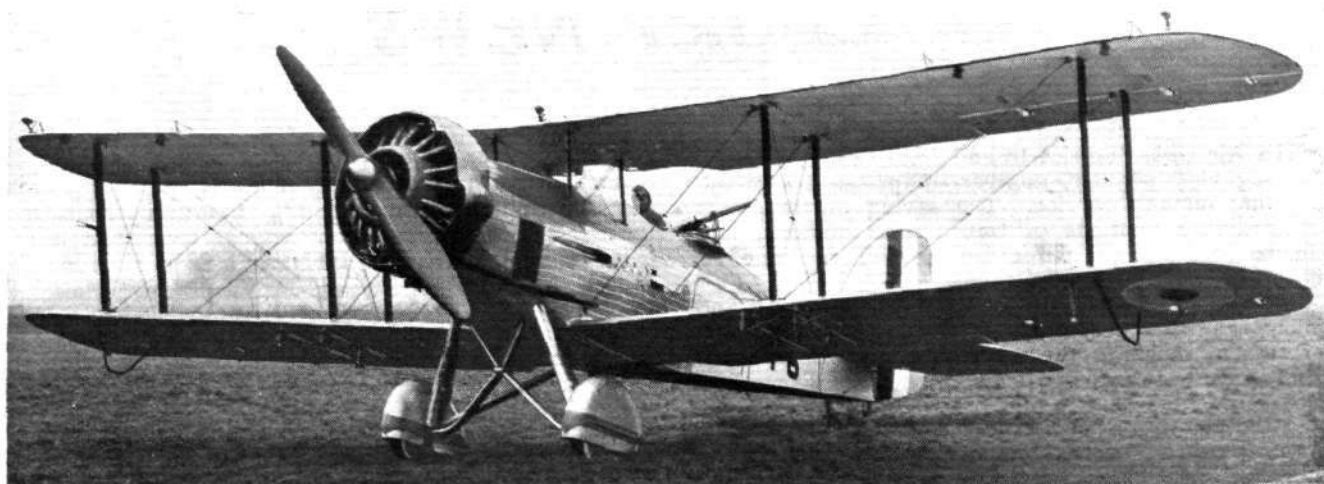
The Land Speed Record

On February 24 Sir Malcolm Campbell made a fresh attempt on the motor speed record of 247.736 m.p.h. he established last year at Daytona Beach, Florida. Driving the same *Bluebird* car, modified, fitted with a Napier VII.D racing engine, he accomplished the following speeds

in two runs over the measured mile:—Southwards, time, 13.46 sec., 267.459 m.p.h. Northwards, time, 14.89 sec., 241.773 m.p.h. Average time, 14.175 sec. Average speed, 253.963 m.p.h. The Napier engine was fitted with Hoffmann ball and roller bearings and K.L.G. plugs. Pratt's Ethyl special petrol and Wakefield Castrol oil were used.



A FINNISH SEAPLANE: The Kotka seaplane, manufactured at the Government aircraft factory in Finland and fitted with a Bristol "Jupiter" engine.



The Westland P.V.6

A New General Purpose Aircraft which is the logical development of the famous "Wapiti" and has its wings interchangeable with it. The performance is, however, much better. The Engine is a Bristol "Pegasus" M2

NOT only is there an insistent and increasing demand for aircraft designed to fulfil a number of different functions, but also the performance asked and the load to be carried increase constantly. The aircraft designer who would succeed is thus compelled to produce something rather exceptional. Recently the Westland Aircraft Works, of Yeovil, have introduced a new type in the "General Purpose" class, the P.V.6. This machine has a quite remarkable performance, and is also noteworthy for the fact that it is one of the first, if not the very first, aircraft to be equipped with the new Bristol "Pegasus" engine, an article on which begins in the present issue.

The P.V.6 has more than a passing likeness to the famous "Wapiti," and resembles that machine in more than superficial outlines, the main structure being of the same type. The extra performance has been obtained by a general "cleaning up" of the design. For instance, the decking over the cockpits and forward portion of the fuselage has been given tumble-home sides, which also has the effect of improving the view. The forward portions of the fuselage side fairings are now curved so as to house the

fixed machine gun and its mounting, as well as the elevator control cranks and cables. The sides in front are in the form of detachable panels, which can be quickly removed for inspection of structure and equipment, etc., while on the rear portion the fabric covering is fitted with "Zipp" fasteners so that this also can be easily inspected.

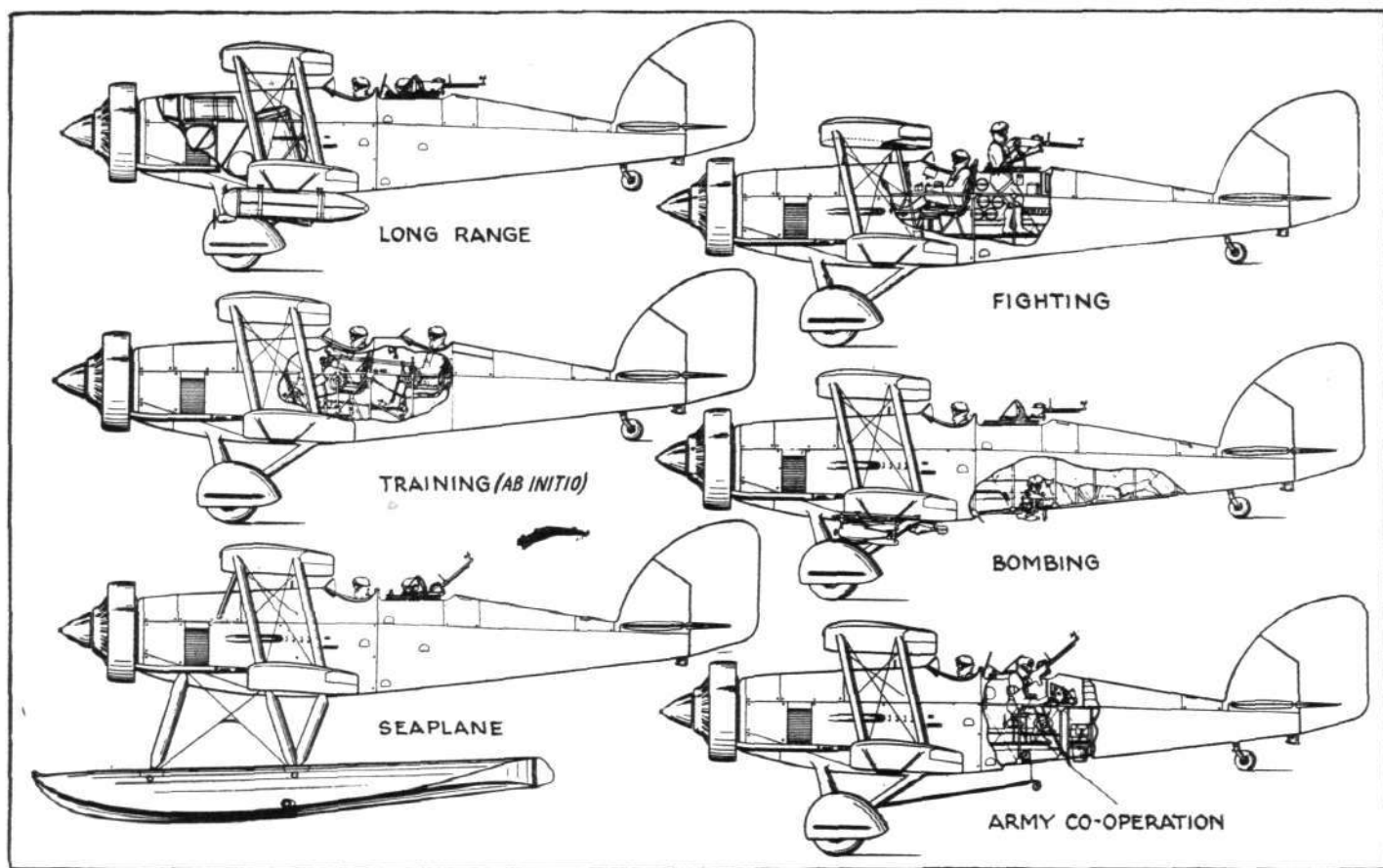
An undercarriage of a type different from that of the "Wapiti" has been incorporated, and is of the "split" type, the oleo leg being also of an improved design giving excellent action. Wheel brakes are fitted, and a tail wheel supplants the tail skid of the "Wapiti."

The wings, struts, centre section and tail surfaces are interchangeable with those of the standard "Wapiti," and are stressed to take a maximum aerobatic load of 5,500 lb. For special purposes the aircraft can be flown at an all-up weight of 6,500 lb., and can thus be flown for distances up to 1,000 miles (1,600 km.) when fitted with extra tanks. With normal tankage a widely differing assortment of bombs can be carried, up to the maximum permissible load. Very simple bomb releases make it possible to drop the bombs either in series or in salvo.

The armament consists, in addition to the bombs, of



THE WESTLAND P.V.6: The three-quarter front view at the top of the page and the three-quarter rear view above show the machine to have a strong family resemblance to the "Wapiti." Note the low-drag cowling over the Bristol "Pegasus" engine.



GENERAL PURPOSES : Some of the many functions of the P.V.6 illustrated diagrammatically.

two machine guns, a Vickers fitted with interrupter gear and used by the pilot, and a Lewis gun mounted on a Scarff gun ring and operated by the observer. The Vickers gun is mounted inside the side fairing.

The Bristol "Pegasus" M2 engine is so mounted as to be readily accessible, ample space being left between the back cover of the engine and the fireproof bulkhead, while the side panels of the fuselage at this point can be quickly removed. An inertia starter is fitted, the crank being normally operated by two men, although, if necessary, one man can start it. Provision is also made for the R.A.E. gas starter to be fitted.

As the photographs show, a somewhat elaborate Townsend ring is fitted, and doubtless this has contributed materially to the good performance of the machine. The

ring can be readily removed from the engine after releasing two fasteners on the cowl.

The diagrams on this page show some of the purposes for which the P.V.6 can be used. Photography, Army Co-operation, Picking up Messages, Wireless, Reconnaissance, Bombing, Long-distance Reconnaissance (when fitted with special tanks), Dual Instruction, Offensive and Defensive Fighting, and Seaplane Work are some of the many classes of work for which the P.V.6 can be used, and its high performance, coupled with the considerable load carried, should ensure for it a popularity comparable with that enjoyed by the "Wapiti" for a number of years. Actual performance figures may not be quoted, but the makers inform us that the speed is surpassed by the very latest highly specialised fighters and day bombers only.



THE P.V.6 : As a result of generally clean design, drag-reducing cowling, "spats" over the wheels, and other refinements, this new Westland machine, which is fitted with one of the new Bristol "Pegasus" engines, has a very good performance.

PRIVATE FLYING & GLIDING

LONDON AEROPLANE CLUB

Maj. Travers, the Chief Instructor, who has been away on sick leave, is progressing favourably, and everyone wishes him a speedy recovery. In the meantime Mr. Nigel Tangye is carrying on single handed. Flying during the last week has been somewhat hampered by the weather, but in spite of this quite a considerable amount of flying has been done. Mr. Lawry, who has just come home on leave from East Africa, has joined the club with the intention of taking his "A" licence before his return. One of the oldest members, Flt. Lt. W. E. P. Johnstone, now at the Central Flying School, has recently been decorated with the A.F.C. Those who were at Stag Lane during the very early days of the club will remember his efforts on the Reid Indicator, when he invariably scooped the pool held on the results.

BROOKLANDS

Over 45 hr. instructional flying were done during the last week at Brooklands. This was made possible by the favourable weather and also by the large number of pupils who are now joining the school. Messrs. Shuttleworth and Weyman have completed the tests for their "A" licence, while Messrs. Freemantle and Vetch have made their first solo flights. Members of the Press Aero Club have started to fly and several were down taking instruction during the week.

Considerable extensions have been made to the college engine shops at the College of Aeronautical Engineering, Sydney Street, Chelsea, which, as everyone knows, is run in conjunction with the Brooklands School of Flying. These extensions have been necessitated through the increasing number of applications from students all over the world, and it is therefore now possible to take on about 15 more students beginning at the Easter term on April 6. Those who wish to join should apply immediately to the Principal of the College.

AT LYPNE

The Cinque Ports Flying Club have found their flying interrupted during the past week by the strong winds. Nevertheless at least one pupil, Mr. Bailey, was able to go solo on Friday. The Hon. Mrs. Victor Bruce is at present staying at Lympne in order to practise night flying, but so far the weather has been unfit for this. Already many applications for the new county membership have come in, and it looks as if this should be a very popular innovation.

SCARBOROUGH AERO CLUB

The Scarborough Aero Club has secured a new site for an aerodrome about 10 miles from Scarborough, on the York Road between Sherburn and East Heslerton, and the committee has been assured of support from Malton, York, Pickering, Whitby, Filey, and Bridlington.

The club has now 100 non-flying and 30 flying members, several of whom are ready to qualify for their "A" certificate.

THE BRITISH GLIDING ASSOCIATION

The 2nd Annual General Meeting was held in the Library of the Royal Aeronautical Society, on Monday, February 22, at 6.30 p.m. Lt. Col. F. C. Shelmerdine, C.I.E., O.B.E. (President), was in the chair. The annual report, financial report and balance sheet, having been circulated to all members and affiliated clubs, were approved and accepted, on the motion of the President, seconded by Mr. L. A. Wingfield. The recommendation of the Council with regard to forming the Association into a company with limited liability under the Industrial and Provident Societies Acts, 1893 to 1928, was accepted, and Messrs. Gordon England, Ashwell-Cooke, Culver, Howard-Flanders, Lowe-Wylde, Needham, Whidborne and the Secretary were requested to sign the application to the Registrar. The new rules were also approved.

Lt. Col. Shelmerdine was re-elected President, and Col. Mervyn O'Gorman, Mr. Handley Page, Col. The Master of Sempill, Miss Amy Johnson, Kathleen, Countess of Drogheda and Air Commodore Chamier were re-elected Vice-Presidents.

Mr. Gordon England and Mr. Seymour Whidborne were re-elected Chairman and Honorary Treasurer respectively.

The following were duly elected to the Council:—

Under Rule 14(b)

F. Wilkinson (Bridlington), C. M. C. Turner (Chanel), G. T. R. Hill (Dorset), Dr. Milner (Driffild), A. P. Cox (Dumfries), W. Cameron (Edinburgh), H. Ward (Essex), A. L. Tommison (Falkirk), F. Pilling (Furness), Hon. Alan Boyle (Glasgow), F. Jackman (Huddersfield), W. E. Dinsdale (Ilkley), P. Adorjan (Imperial College), Capt. Harold Balfour, M.P. (Isle of Thanet), A. M. Sanquinetti (Kent), A. C. Smith (Kilmarnock), D. Robertson and S. Humphries (London), W. Grundy (Manchester), Crompton (Matlock), E. Noble (North Cotswold), L. O. Kekwick (North Kent), W. G. Stagg (N.S.W.), L. Button (Nottingham), A. F. Houlberg (Oxford), A. E. Knight (Portsmouth), J. R. Holden (Sheffield), A. N. Stratton (Southern Counties), L. Rosoman (Southampton), L. R. Brown (Southdown), P. Pritchard (South Shropshire), Maj. Heyn (Ulster), J. F. Cuss (Wilts), A. Small (Worthing).

Under Rule 14(c)

Messrs. Ashwell-Cooke, Culver, Entwistle, Gordon England, Howard-Flanders, Lowe-Wylde, Needham, Paling, Symmons, and Whidborne.

Under Rule 14(c)

Maj. Petre (Royal Aero Club), The Master of Sempill (Royal Aeronautical Society), Sir Gilbert Walker (Royal Meteorological Society), Capt. Lawrence Hope (Guild of Air Pilots).

Mr. Claud A. Bloor, of William Smart, Son & Bloor, was elected Honorary Auditor, and Mr. A. I. Logette was elected Honorary Solicitor for the current year.

A vote of thanks to the President concluded the proceedings.

An Avro Avian just supplied to A.S.T. for instruction use at Hamble. This Machine is now fitted with Dunlop low-pressure tyres and the Armstrong Siddeley Genet Major Engine.





THE PRESS LEARNS TO FLY:—The Press Aero Club held their first meeting at Brooklands on February 21. The above group, taken on this occasion, include Percy Bradley, B.A.R.C.; W. Courteney (Daily Mail, Hon. Sec. P.Ae.C.); G. H. Grimaldi and Roger Fuller (Daily Mail); T. H. Wisdom (Daily Herald); Capt. and Mrs. Duncan Davis (Brooklands School). About thirty Pressmen and women attended the Meeting.

ILKLEY GLIDING CLUB

The annual meeting of the Ilkley Gliding Club was held on February 23. Mr. H. V. Price was elected President; Mr. W. E. Dinsdale, Chairman; Mr. J. Allen, Hon. Sec.; Mr. Hodgson, Hon. Asst. Sec., and Mr. Boden, Hon. Treasurer. It was decided that if possible an Easter camp should be held at Malham, and that in any case the usual Easter Sunday meeting would be organised. A joint meeting with the Harrogate club was proposed for July, with Beamsley Beacon as the probable site. The summer camp will be held on August Bank Holiday.

THE AIRCRAFT CLUB, HARROGATE

The joint meeting held between this club and others at Saltersgate, near Pickering, Yorks, on February 14, 1932, attracted four sail-planes and gliders. These were Mr. Thompson's "Prüfling," Mr. Slingsby's "Falke," the Aircraft Club's "Dickson Type" glider, and the York and Malton private owner's "R.F.D." machine. The Harrogate machine was rigged early in the morning, and the weather, being fine and sunny, everything promised well for a good day's gliding. By lunch time the other machines were arriving, and the Harrogate machine was launched and made a contour flight, level with the top of the ridge, near the Hole of Hocum. When reaching a

projecting spur some three-quarters of a mile away to the west it lost the wind and was neatly landed. A heavy rain squall came on, when those present sheltered under Mr. Slingsby's glider and in the cars nearby. The rain ceased temporarily and the wind increased, when the "Falke" was launched, making a very pretty flight of 8½ min. On landing Mr. Slingsby reported that the conditions aloft were exceptionally bumpy, and then proceeded to dismantle his machine. The Harrogate glider was then launched the second time, from the opposite side of the ridge, over the western slope. There was a strong wind blowing of about 30 m.p.h. with an upward trend of 45 deg., the machine rose well, and Mr. Addyman, who was piloting, proceeded along the ridge for half a mile, when unfortunately the glider was caught in a strong gust, which lifted the pilot entirely out of his seat and took his feet off the rudder-bar. In attempting to regain the controls and his seat, Mr. Addyman inadvertently levered himself by the joy-stick, causing the machine to turn nose down with the wind and crash at a high speed. The glider was completely wrecked; Mr. Addyman suffered severe injuries to his thighs and one hand was almost severed, which later had to be amputated at the wrist. He was taken to Malton Hospital, but is now in Harrogate, and doing very well.

Running Costs of Car v. Plane

ADDRESSING members of the Royal Empire Society on March 1—at which Lt. Col. F. C. Shelmerdine, Director of Civil Aviation, presided—Col. the Master of Sempill gave an interesting comparison between the cost of running a light aeroplane and a 20-h.p. car. Travelling 12,000 miles in the year, the cost, he said, worked out approximately the same—between 4d. and 4½d. a mile. An actual case was:—

| | 20-h.p. car. | Aeroplane. |
|--------------------|--------------|------------|
| Petrol and oil ... | £40 5 0 | £40 16 8 |
| Tax ... | 20 0 0 | 5 5 0 |
| Tyres ... | 18 0 0 | 3 12 6 |
| Insurance ... | 23 5 0 | 50 0 0 |
| Maintenance ... | 64 15 0 | 70 0 0 |
| Housing ... | 39 0 0 | 39 0 0 |
| | £205 5 0 | £208 14 2 |

Grants to Flying Clubs

In answer to questions in the House on February 24, the Under-Secretary for Air stated that of the sums of £15,000 and £5,000 allocated in the Air Estimates to the

light aeroplane clubs and National Flying Services respectively, the amounts of £9,092 and £1,470 had so far been expended, and that it was estimated that the total expenditure for the year would be £10,600 to light aeroplane clubs and £2,000 to National Flying Services. Sir Philip Sassoon said that the agreement with the light aeroplane clubs expired on July 31 and that the whole matter was being very sympathetically considered by Lord Londonderry.

Flying over Turkey

SIR PHILIP SASSOON stated, in answer to a question in the House on February 24, that no complaints had reached him of difficulty in obtaining permission to fly over Turkish territory. The Turkish Government had shown themselves ready to grant applications submitted in accordance with Turkish air regulations. Difficulties had only arisen when civil pilots had failed to comply with those regulations.

Meaning—If Any?

MR. PERKINS asked the Secretary of State for Air, on February 24, "Does not the hon. gentleman consider that the time has come when Imperial Airways and the Air Force should be amalgamated under some scheme?"

AIR TRANSPORT

CIVIL AVIATION IN DUTCH EAST INDIES

IN the Report on the Economic Conditions in the Dutch East Indies issued by the Department of Overseas Trade the following is given regarding civil aviation:

Civil aviation has made great progress since 1928, when, on November 1 of that year, the Koninklijke Nederlandsch-Indische Luchtvaart Maatschappij (K.N.I.L.M.) opened a passenger and mail service between Batavia and Bandoeng.

On December 31, 1930, the following lines were in operation:—Batavia-Bandoeng, 110 km. twice daily; Batavia-Samarang-Surabaya, 670 km. daily; Batavia-Palembang, 585 km. weekly; Batavia-Palembang-Singapore, 1,161 km. weekly; Batavia-Palembang-Pakanbaroe-Medan, 1,727 km. weekly.

The Batavia-Samarang-Surabaya service was inaugurated in 1929, the Batavia-Palembang-Singapore service on March 4, 1930, and the weekly service Batavia-Medan on September 27, 1930. The results achieved may be considered to be satisfactory in all respects as the number of passengers and also the weight of mails carried has increased steadily from month to month.

The financial depression during the current year has affected freight traffic by air, although to a much smaller extent than was expected. The returns for passenger, mail and freight traffic are as follows:—

| | Passengers. | Mail. | Freight. |
|---------------------|-------------|-------|----------|
| | | Kg. | Kg. |
| 1928 (2 months): .. | 2,105 | 200 | 3,509 |
| 1929 | 14,457 | 2,232 | 62,793 |
| 1930 | 18,248 | 9,372 | 119,927 |
| First-half 1931 .. | 9,240 | 8,689 | 45,603 |

As the Batavia-Medan line created a third connection between Batavia and Palembang, the separate Batavia-Palembang service was suspended as from May 1, 1931.

During the first half of 1931, 1,418 flights were made in 2,760 hours. The K.N.I.L.M., since they started operations in November, 1928, to June 30, 1931, have covered a total distance of 1,800,000 kilometres without a single serious mishap and with 100 per cent. efficiency.

The fleet on July 1, 1931, consisted of:—Five Fokker aeroplanes, F VIIb, fitted with three "Lynx" engines each; two Fokker aeroplanes, F VIIb, fitted with three "Titan" engines each; two Fokker aeroplanes, F XII, fitted with three "Wasp" engines each. The company report that their experience with both aircraft and engines has been in every way satisfactory.

There is no doubt that the public now regard the air service as an integral part of the lines of communication in daily use in this country. Business men use air transport as a quick means of getting from one town to another with no more concern than they travel by railway or motor-car; also for the rapid transport of letters, the air service is well supported. Air mail letters are posted and delivered in the ordinary way, the only difference being that those intended for conveyance by air pay an air mail surcharge and must have a small blue stamp affixed bearing the words "By Air Mail."

The Batavia-Medan air line connects with the Dutch mail boats to and from Europe, thus creating the possibility of gaining three days between Europe and Java. An appreciable use is made of this service by both passengers and air mail; an average of 140 kilogrammes of mail, nearly 10,000 letters, are despatched every Saturday from Batavia to Medan.

Eggs by Air

At this season of the year considerable quantities of eggs are sent through the post, and many of the packages are found, in the course of conveyance, to have been inadequately packed, with the result that not only are the eggs broken, but damage is caused to the contents of other parcels. The Postmaster General therefore considers it necessary to draw the attention of the public to the method

The K.N.I.L.M. receives a subsidy of a million florins per annum from the Netherlands East Indian Government.

Amsterdam-Netherlands India Air Service.—During the past twelve months the K.L.M. have maintained a regular fortnightly service between Amsterdam and Java for the carrying of passengers, mails and freights, also with 100 per cent. efficiency. The route from Amsterdam to Batavia of approximately 9,000 miles is as follows:—Amsterdam, Budapest, Athens, Cairo, Bagdad, Bushire, Jask, Karachi, Jodhpur, Allahabad, Calcutta, Akyab, Rangoon, Bangkok, Medan, Palembang, Batavia.

On the return journey air mail from British Malaya is picked up at Alor Star. The journey either way takes from 11 to 12 days. Passages can be booked direct from Great Britain to Java. The fare from Amsterdam to Batavia is fl. 2,200, inclusive of full board and lodging at hotels en route. Luggage up to 15 kilogrammes is carried free. Every passenger must be in possession of a valid passport bearing all the necessary visas of the different countries over or in whose territory it is necessary to fly or land.

The success of the Amsterdam-Netherlands India Air Service is now assured; in fact, mail traffic to and from Europe has so increased that the K.L.M. ran a weekly service as from October 1, 1931.

It has recently been announced that the Government of the Netherlands East Indies has accepted a proposal of the Dutch postal authorities whereby the whole of the regular air mail service between Holland and the Netherlands East Indies shall, both in regard to receipts and expenditure, be for the account of the Dutch postal service. The Netherlands Indian Postal Service will, however, pay to the Dutch Postal Service the sum of fl. 200,000 per annum.

The above-mentioned arrangement will supersede the present agreement whereby the Koninklijke Luchtvaart Maatschappij receives for each trip between Holland and Java subsidies of fl. 25,000 from the Netherlands Government and fl. 18,750 from the Netherlands East Indian Government, receipts being credited against these subsidies. Under the existing arrangement for fortnightly trips the Netherlands East Indian Government pays, at fl. 18,750 a trip, an aggregate sum of fl. 487,500 per annum, while receipts are estimated at slightly under fl. 300,000. The contribution of the Netherlands East Indies to the new weekly service is thus practically unchanged, the main difference being that the whole risk over and above this contribution will henceforth be borne by the Netherlands postal authorities instead of being shared between Mother Country and Colony.

It is interesting to note that local banks will now quote an exchange rate with Holland for drafts sent by air mail.

Air Service to Australia.—As an experimental flight, though no doubt with a view to collecting data in consideration of the possibilities offering for extending the Holland-Java Air Service to Australia, the regular K.L.M. aeroplane which left Amsterdam on April 30, 1931, was timed to connect with a triple-engined K.N.I.L.M. Fokker mail-carrying monoplane, fittingly named the *Abel Tasman*, scheduled to leave Batavia for Australia on May 12.

The journeys from Holland to Batavia and Batavia to Melbourne were completed according to schedule. Letters posted in Amsterdam up to midnight on April 29 were delivered in Wyndham (Australia) on May 13, and in Melbourne on May 18. The route followed from Batavia was Koe pang, Wyndham, Camooweal, Charleville, Brisbane, Sydney, Melbourne. The *Abel Tasman* left Sydney on its return flight to Batavia on May 24 and landed at Batavia on May 28.

of packing which has been found by experience to afford the best protection. A wooden, or other rigid box, with suitable partitions and a well-fitting lid, should be used. Each egg should be wrapped separately in paper or other soft material and placed on end in a separate partition, and the vacant spaces should be filled with paper, or some such material as cotton waste. The cover of the parcel should be marked conspicuously "Eggs."

THE ISLE OF WIGHT AIR FERRY

AN average of 2½ million people cross between the mainland and the Isle of Wight every year, making a total of five million crossings. The majority of these take place between Portsmouth and Ryde, while the rest cross between Southampton and Cowes, Lymington and Yarmouth, and are also accounted for by the numerous pleasure steamers which pay the island visits from the South Coast towns.

Wight Aviation, Ltd., under their new name of Isle of Wight Aviation, Ltd., are considerably expanding their interests with a view to the operation of an aerial "ferry" or "bus" service between Portsmouth and Ryde.

To this end they have acquired 82 acres of land situated 1½ miles from the centre of Ryde, on the main Ryde-Sandown road. The property forms part of Barnsley Farm, and is a natural plateau, with the country falling away on all sides, and is exceedingly free from surrounding obstructions.

The site allows for runs of over 600 yards in all directions, and is slightly convex in shape, affording excellent natural drainage. It comprises parts of twelve fields and has 1½ miles of hedges and ditches to be removed. The work of clearing and surfacing is to be carried out by Hunters, of Chester. It is expected that part of the aerodrome will be ready for operation by the middle of next June, and that it will be completed in the autumn.

The aerodrome is to be known as the "Isle of Wight Air Port," and is in a unique position, being the only possible site for an air port at Ryde. Communications are good, it is situated on the main Ryde-Sandown and Shanklin road, and is served by a frequent service of

buses. The aerodrome should prove an excellent spot for private owners to fly down to for a bathe, since it is only 1¼ miles from Seaview beach.

From the aerodrome it is expected to run an hourly service to Portsmouth in both directions during the summer, and more frequently if required. This it is hoped to start in June.

The single fare for the journey will be about 5s., while the flying time will be about 7 min. Aircraft are to be used capable of sustained flight with one engine out of action, since the length of the trip is about 9 miles and 75 per cent. of it will lie over water.

Trips round the Isle of Wight lasting about 45 min. will be conducted from the aerodrome for the same fare as was charged by the charabancs a few years ago. Pleasure flights, air taxis, facilities for private owners, and all other forms of business appertaining to an aerodrome are to be carried on. In addition, the aerodrome is to be provided with an amusement park and restaurant.

Wight Aviation, Ltd., are also improving the facilities at their "Apse" aerodrome at Shanklin, which they have operated for the past four years. A steel-framed hangar constructed by Boulton & Paul, Ltd., is being erected capable of housing eight light aeroplanes, and a car and charabanc park is being constructed, while refreshments will be available on the aerodrome.

The concern is a private limited company, and will have an authorised capital of £17,500 in £1 shares. The active directors of the company are at present Messrs. A. G. Murray, L. M. J. Balfour, and J. H. A. Wells, the latter also being chief pilot to the company.

The Trans-India Air Mail

It will be remembered that in its representations last year to the Postmaster-General and the Secretary of State for Air, the London Chamber of Commerce urged that every effort should be made to push forward the completion of the Imperial Air Route to Australia, and thus establish the through air mail service. The recent decision of the Indian Government not to proceed with the establishment of the Indian sector of the Imperial Air Route owing to the financial crisis has caused much concern amongst the commercial community with interests in India and Burma. The Council of the Chamber has always contended that everything possible should be done, in the interests of commerce, to foster the development of air mail services. On the recommendation of its Civil Aviation Section, it recently decided to support a proposal put forward to the Government of India by the Burma Chamber of Commerce that, pending the establishment of an Indian State Air Service and the further extension of the Imperial Air Route to Rangoon, the air mail between Karachi and Rangoon and *vice versa* should be carried by the Royal Dutch Air Lines (K.L.M.), which for the last six months have been operating a regular weekly service between Amsterdam and the Dutch East Indies. Representations have accordingly been made to the Secretary of State for India that the Indian Government should be urged to adopt this proposal as a temporary expedient, subject to adequate safeguards for the future of the Imperial Air Route and with provision for the hand-

ing over to Imperial Airways at Karachi of air mail carried between Rangoon and that port. It is to be hoped, however, that the Indian Government may soon see its way to resume the work on this most important link of the Imperial Air Route which was interrupted last year.

European Air Mails

THE Postmaster General announces that, in consequence of seasonal changes in the timing of the air services and the resumption of the air service from London to Copenhagen and Malmo, on and after March 1, the latest time of posting air mail correspondence for Czechoslovakia, Danzig, Denmark, Estonia, Finland, Germany (Berlin), Holland, Lithuania, Norway, Poland, Russia and Sweden will be 6.45 a.m. instead of 7.45 a.m. in the air mail letter-box outside the General Post Office, London, and correspondingly earlier elsewhere. The parcel air mail service to Norway recommenced on the same date.

Graf Zeppelin Service to South America

THE Hamburg-Amerika Line issues with its usual list of sailings the announcement of a regular Zeppelin airship service to South America. The first flight is scheduled to begin on March 20, and according to present arrangements there are to be 10 flights in all, four in the spring and six in the autumn. On each occasion the *Graf Zeppelin* is scheduled to leave Friedrichshafen on a Sunday at 12.30 a.m., reach Pernambuco in Brazil at 11.30 p.m. on the following Tuesday, and begin the return flight on the following Friday.

HIGH-SPEED AIR SERVICES: Varney Speed Lines, Ltd., operate a high-speed passenger and mail service between Los Angeles and San Francisco, a distance of 375 miles. Lockheed "Orion" monoplanes (450-h.p. Pratt & Whitney "Wasp")—one of which, "North Wind," is shown here—are used, and accomplish the journey in 1 hr. 58 min. at a speed of about 182 m.p.h.



AIRISMS FROM THE FOUR WINDS

The Prince Flies to Hounds

THE PRINCE OF WALES was out with the Grafton Hounds on February 26, and flew to the meet at Culworth Crossroads from Himley Hall. His A.D.C., Maj. Aird, followed him in another plane. After a good day's hunting the Prince called at Culworth House. On his departure by air he was given a hearty send off.

Miss Sewell's Lone Flight

PILOTING, unaccompanied, a D.H. "Gipsy Moth," Miss Irene Brooke Sewell left Gatwick Aerodrome on February 23 on a 3,500-mile flight to Transjordan. The flight is a pleasure one entirely, mainly to visit friends at Amman. She reached Le Bourget in the afternoon, but was held up there by bad weather until February 25, when she proceeded to Marseilles. Rome was reached on February 27, and after a stop of 20 min. she flew on to Naples. Here she was again held up by bad weather.

The Flight to Capetown

Now that the February moon has passed without a favourable opportunity having been found for Sqd. Ldr. Gayford and Flt. Lt. Bett to make a start in the Fairey (Napier) long-range monoplane on the attempt to fly non-stop to Capetown, it is probable that the attempt will be postponed until the moon of November. February is considered the month in which the best average weather conditions are likely to be met throughout the whole route. The spring and summer months of the Northern Hemisphere are less suitable, as the pilots would be flying out of summer weather into autumn or winter weather. It is true that a flight during the March moon was at first considered, but the decision to wait for November is doubtless the most prudent, and therefore the wisest, course.

Air Minister Flies from Geneva

LORD LONDONDERRY, Secretary of State for Air, arrived at Croydon Aerodrome in the air liner *Helena* at 10.30 a.m. on February 25, having travelled from Geneva in 12 hr.

Spartans in South Africa

SKYWORK, LTD., have now finished their programme of joyriding in South Africa and both Mr. E. F. Ayre and Mr. C. F. Riley have returned to England. Mr. Ayre tells us that the three-seater Spartan proved itself an ideal aircraft for the country, and everywhere it amazed people by its performance. For example, at the beginning of the tour they had to send one machine to Kimberley to be tested for performance against all other well-known makes of aircraft. Now Kimberley is 4,000 ft. high, and the days chosen for the test were extremely hot; moreover, Mr. Ayre had hardly begun to know his machine, while his Hermes engine was brand new, having only just flown up from Capetown. It was, therefore, still stiff, and by no means giving its best. On the full load take-off he actually overloaded the machine by 175 lb., making in all 1,875, as in the rush he quite forgot to account for the petrol and oil. Despite this fact, however, the machine only took 242 metres to get off, while in the single-passenger test, with the machine loaded to 1,590 lb., the take-off run was only 120 metres, this being the lowest run of any machine. Throughout the tour, during which each machine did some 200 hr. flying and visited 32 towns in two months, not the slightest trouble was experienced with the machines or with the Hermes engines. The only difference to the three-seater Spartans usually seen over here was the fitting of semi-balloon Dunlop tyres, which Mr. Ayre found assisted greatly both for take-offs and landings at some of the aerodromes they had to visit. The following is the list of towns visited during the tour:—Capetown, Caledon, George, Oudtshoorn, Port Elizabeth, Grahamstown, King Williams Town, East London, Umtata, Pietermaritzburg, Durban, Ladysmith, Newcastle, Johannesburg, Witbank, Pretoria, Benoni, Johannesburg, Potchefstroom, Kroonstad, Bethlehem, Kimberley, Bloemfontein, Aliwal North, Queenstown, Cradock, Somerset East, Graaff Reinet, Beaufort West, Oudtshoorn, Mossel Bay, Capetown.

Autogiro's Long-distance Flight

A LONG-DISTANCE flight is shortly to be undertaken by F/O. John N. Young in a C.19 Mark IV two-seater Autogiro (100-h.p. Armstrong-Siddeley "Genet Major"), fitted with an extra fuel tank. He proposes to fly to Tanganyika, and possibly continue as far as the Cape. It is expected that a visit of an Autogiro to Africa will

give rise to a considerable amount of interest, as the Autogiro Company have already received numerous enquiries from all parts of Africa concerning this type of machine.

Curtiss "Hawks" for Turkey

THE Turkish Government has signed a contract for the supply of 24 Curtiss-Wright "Hawk" military biplanes. Of these 18 will be sent from the United States and the rest will be constructed in Anatolia.

Instrument Flying

SIR PHILIP SASSOON stated, in reply to a question on February 24, that instruction in instrument flying was given at the Central Flying School with a view to the qualification of all flying instructors, and that the subject was being introduced into the course of initial flying training of all pilots. The number of pilots so far instructed was 122, and the number of aircraft equipped or being equipped for the work was 59.

Tests on the Breda 33

THE advantages of the decimal system cannot be doubted, but one is somewhat tempted to look upon it with disfavour when, in working out conversions from metric to English to the accompaniment of numerous interruptions, the decimal point wanders off the paper! We need hardly draw attention to an obvious error, arising in this way, which crept into the paragraph published on page 164 of our issue of February 19 last, concerning Tests on the Breda 33, where it was stated that this machine could officially take a pay load of 8,850 lbs. This, of course, should have read 885 lbs.—will readers please note?

Lead-Bronze Bearings

IN connection with the summary of R. & M. No. 1424 published in THE AIRCRAFT ENGINEER last week, it will interest our readers to know that the lead-bronze bearings referred to there are now being made in this country by the Napier and Rolls-Royce companies, largely as a result of research work on the subject carried out at the Royal Aircraft Establishment, Farnborough.



PRINCE LEARNING TO FLY: Prince Lennart of Sweden is at present taking lessons in flying a "Puss Moth" at de Havilland's Hatfield aerodrome. He is here seen in front of the machine with his fiancée, Miss Karin Nissvandt. (FLIGHT Photo.)

THE INDUSTRY

MODERN AIRSCREWS

FOR MANY YEARS past there has been in evidence a tendency for airscrews to be manufactured from other materials than from wood. Wood has held the field, though not entirely unchallenged, since the earliest days, but it must be admitted that it has certain serious disadvantages. For example, flying through hail or dust storms may easily be disastrous if the airscrew being used is of wood; furthermore, extremes of temperature and rapid changes of weather often mean that trouble ensues.

Both steel and duralumin have been tried with varying degrees of success, as well as moulded material, such as "Micarta." The former are used in a variety of forms, among the most ingenious being the hollow steel bladed types made by Metal Propellers, Ltd., Purley Way, Croydon.

Hollow Bladed Airscrews

These airscrews are made under patents originally taken out by Mr. Leitner and Dr. Watts, and result in an airscrew with detachable blades connected at a hub which allows an infinite variety of blade setting for pitch. The blades are formed from a series of laminæ which, in the first place, are pressed together to form a half-blade. This is done (as shown in our illustration) in a large press, and the firm now have a range of dies providing suitable sized airscrews from those huge ones used for the engines in R.101 down to those for the Hermes or Gipsy engines of light aircraft. After the half-blade has been pressed to its correct sectional form, it is paired with its "opposite number," and the two halves are tack-welded together. Further operations include welding on the ring by which the blade is secured in the boss, final welding along the join of the two halves, balancing and heat-treating. The balancing is most carefully done, each blade being not only balanced in the ordinary fashion on a horizontal balance, but also on a vertical balance, thus ensuring that the two blades are perfectly matched. For this purpose the tips of the blades are left unwelded until the final balancing, thus allowing an easy means whereby the balance can be achieved.

Large numbers of these airscrews are in use by the R.A.F., especially abroad, where they have been found to stand the climate excellently.

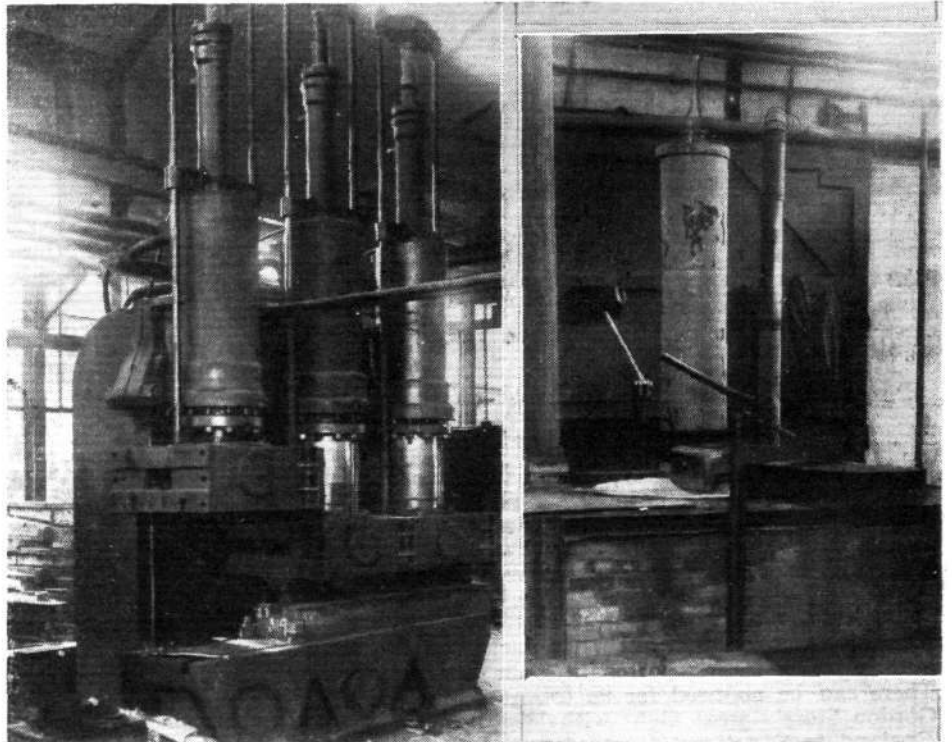
Stainless-Steel Blades

In the past it has been necessary to repaint the blades fairly frequently if the metal had been laid bare due to

safety for the same weight or, alternatively, a lighter airscrew for the same factors.

Duralumin Blades

Steel is, however, not the only material in use at this factory for the manufacture of airscrews, for some of the latest are being turned out in duralumin. These are made from forgings, and the same type of hub as used for the steel airscrews is being retained. Such a construction allows



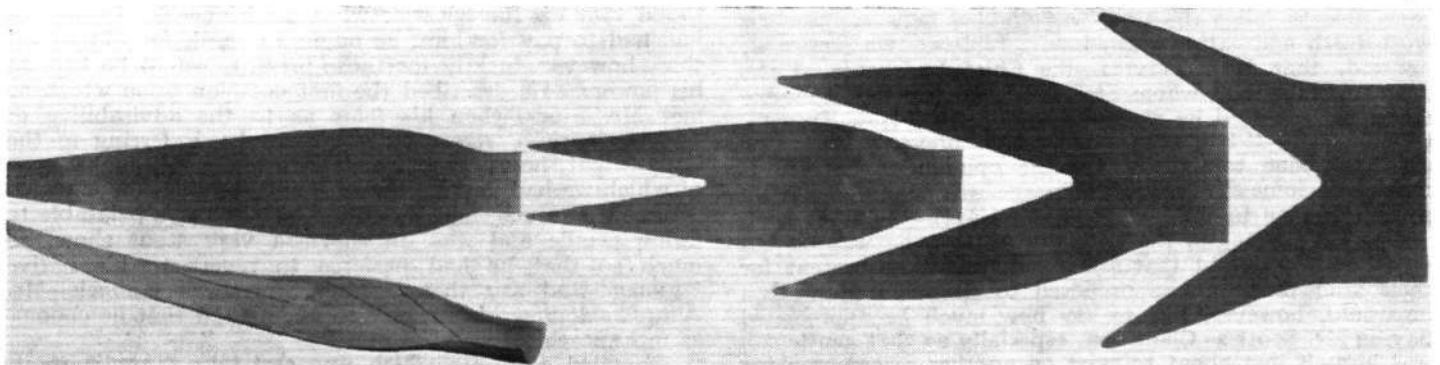
On the left is the great press at the works of Metal Propellers, Ltd., for forming the halves of the airscrew blades. For small airscrews only two rams are used. On the right is the heat treatment furnace with a canister, in which the blade is slung, ready to be lowered down the shaft of the furnace. (FLIGHT Photos.)

flying through rain or dust, as otherwise a rusty surface resulted. This has now been overcome through the use of stainless steel. An airscrew with blades made from this material is at present under test, and the results so far obtained go to show that great things may be expected from this new departure. The use of rustless material makes it unnecessary to protect the surface in any way, as use will always keep it bright and clean; moreover, this metal has a higher tensile strength than has the steel normally used, and it will therefore be possible to obtain higher factors of

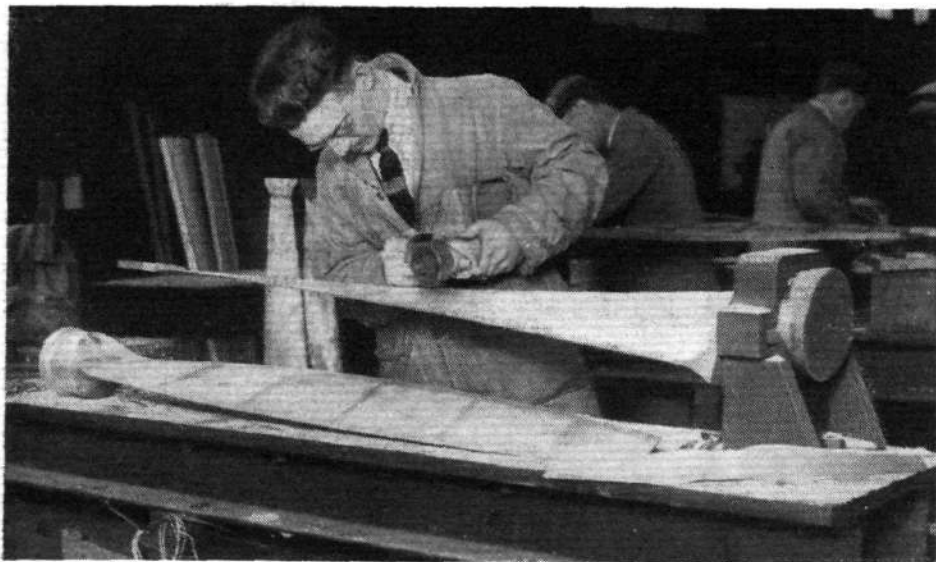
of the blade root being designed for maximum efficiency, and the section remains almost of the same thickness from the middle of the blade right down to the boss. By this means it is hoped to secure far greater efficiency than has hitherto been found possible, since the root losses are thereby kept down to a minimum, while at the same time the use of the standard hub makes it possible to adjust the pitch of the blades.

Other Activities

Stainless steel and its application is a subject of the greatest interest, and



The airscrews made by Metal Propellers, Ltd., are built up from a series of steel laminæ as shown above. A half blade after pressing can be seen on the left.



Duralumin airscrews are also being made by Metal Propellers, Ltd. Above, the mechanic is using a hand electric milling cutter for finishing the blade.
(FLIGHT Photo.)

anyone who does not realise the vast number of uses to which this interesting material is being put should pay a visit to the factory at Croydon. Here, besides airscrews, they will find men engaged upon producing everything from beer vats and cooking utensils down to aircraft fuel tanks and shop-window fronts! Metal Propellers have brought the drawing of various sections down to a fine art, and their absolutely square-edged tubes and sections are in great demand by those who are modernising our shop fronts like that of the Ford Motor Co. in Regent Street.

For tanks in chemical and food works it will readily be realised that stainless steel has proved of the greatest value, and examples of all classes of work for these trades were shown us on the occasion of our visit to the works.

THE REWARD OF VICTORY

NO expression of esteem nor any praise for personal achievement is more genuine than that which is meted out to successful airmen by the Junior Aero Club.

Housed in the ancient premises—hoary with age, but “matey” with modernism—of Ye Old Hambone Clubbe, Ham Yard, Great Windmill Street, W.1, this Club now regularly honours those who have achieved the distinction of being outstanding personalities in the world of flying. There can be no need for us to enter into the history of Gordon Store’s great flight with Miss Peggy Salaman from England to Capetown, for that was dealt with most fully in *FLIGHT* at the time of its occurrence; what we can do, however, is to place on record the amazingly sincere way in which this Club, composed of pilots and those vitally interested in aviation, welcomed Gordon Store on his return to England.

It was a stroke of genius which prompted the appointment of Mr. C. W. A. Scott as Chairman—presumably the exuberantly efficient secretary, Mr. Eric Teesdale, was responsible—for no better individual could have been found. Mr. Scott is himself a record breaker (record-breaking now seems to have become an established business since Mr. Mollison’s recent announcement that his job was doing just that), and he therefore, having had his mead of adulation, could feel sympathetic when Gordon Store was obviously much embarrassed at the drinking of his health.

As Chairman, Mr. Scott started his introduction with the remark that his calculations led him to the conclusion that the time spent on about 20 average dinners, of the sort being held that evening, would equal the time taken by Gordon Store and Miss Peggy Salaman to reach the Cape. He referred in jocular terms to the newspaper reports of that amazing flight, and said that as far as they were able to judge the time was divided between juggling with death and eating malted milk tablets. He regretted, he said, that Maj. Travers—the Chief Instructor of the London Club, with whom Store used to work—was unable to be present, and he read a telegram from Maj. Travers, which said:—“It’s a sad tale which prevents me using my ham bone to-night.” On the opinion of the Chairman, this somewhat cryptic message was taken as having some reference to the jaw bone of an ass!

GORDON STORE, in reply, regretted that he was no use at talking, and said that after thanking those present for their kind thoughts, he proposed to sit down promptly; he would, however, like to say how much he appreciated having Mr. Scott as Chairman, especially as that gentleman was himself just about to start on another record-breaking flight, and he felt sure that everyone would wish him the best of luck upon it.

LADY CHAYTOR then, with the leave of the Secretary,

offered a few observations on the Chairman by way of proposing his health. He was, she said, all that a woman could want; good-looking, very human, and a fine pilot. Moreover, she said, it was largely due to his help that she herself was able to start on her own flight with Mr. Richards to Australia so soon.

MR. C. W. A. SCOTT, in reply, said that the present time was one of life’s awkward moments. He revealed that he and Lady Chaytor had a secret rendezvous at Koepang so that if they were lucky they would be able to go across the water together—not that that was much use, he averred, as, should either of them fall in, the other could only fly round and laugh—however, they would be able to shake hands and congratulate each other if they arrived together, and without doubt they would remember this evening when they did so.

MR. ERIC TEESDALE then exercising the Secretary’s privilege, said he had a few remarks to make. First of all he felt it his duty to point out that this was the first time they had had the pleasure of dining a record-breaker who was already a member of the Junior Aero Club before he made his flight. He also welcomed the presence of several Old Millhillians, who were, he said, really responsible for keeping the Ham Bone Club alive on more than one occasion.

Others who spoke were Mr. Geoffrey Dorman, who wished luck to both Lady Chaytor, her pilot, Mr. R. Richards, and to Mr. Scott. He hoped that they would all go down to Hanworth soon and be given their Messenger Boys’ Caps before they left (Mr. Dorman runs the Messenger Boys’ Flying Club); Mr. Alan Goodfellow, who announced the imposing fact that he was there representing Mr. Harold Perrin, Secretary of the Royal Aero Club, and as he was a lawyer, whose normal charges were 6s. 8d. per hour, he found that on the basis of what his host—Mr. Dorman—had had to pay for him, he ought to speak for 37½ min.; that, however, luckily for those present, would be beyond his powers. He described the first occasion upon which he met Mr. Store when his fears as to the advisability of flying with him were rapidly dispersed. Referring to the Cape Flight, he said that there were really two flights, one of which we had heard so much and the other about which we knew so much, and the latter was far more palatable to flying people and was, in short, a very stout show, so much so that he had perforce to revert to his native language and say that Gordon Store was jannock—Mr. Alan Goodfellow likes people to understand that he cooms from Lancashire!

So ended a dinner which was certainly a credit to its organisers, and, incidentally, if anywhere else can be found a dinner like that at the price then we should be glad to hear of it.

CATAPULTS

"CATAPULTS and Catapulting of Aircraft" was the title of a paper prepared by Mr. P. Salmon, of the Royal Aircraft Establishment, Farnborough, and read before the Royal Aeronautical Society on February 25. Mr. C. R. Fairey, who was in the chair, expressed regret that Mr. Salmon was unable to be present to read the paper, which would be read by Mr. J. B. H. Pritchard, who had helped Mr. Salmon with his work.

In the introductory part of the paper it was pointed out that the energy for the motive plant of catapults was usually derived from compressed air or some slow-burning powder, such as melinite or cordite. At the present time the use of catapults was mainly confined to the launch of fighting aeroplanes from decks of warships, although a few foreign passenger liners had been equipped with catapults for launching mail-carrying aircraft. The catapult afforded the safest means known to-day for getting an aircraft into the air from a small aerodrome or from the surface of the sea. The loads imposed on a heavily loaded aircraft in taking off under its own power could not be calculated accurately, but the loads imposed during catapulting could be practically determined and allowed for in the design with a certain degree of confidence.

At first sight it would appear that a uniform acceleration during launching was desirable, but considerations of the forces involved had led to the conclusion that the greatest acceleration should occur very shortly after the beginning of the launch, and should then gradually decrease, becoming least at the end of the launch.

The acceleration which could be safely applied to the aircraft, and the speed at which it took off, determined the power required to operate the catapult and the length of run involved. Experience had shown that an acceleration between 3g. and 4g. was about the maximum which could be economically provided for on the aircraft structure.

After referring to the necessity for making sure that the engine was not starved of fuel during take-off as a result of the considerable acceleration, the paper pointed out that in other countries it was usual to apply the accelerating and supporting forces through the float undercarriage of seaplanes, whereas in this country it was customary to apply them through the fuselage, usually the rear spar attachments and rear fuselage points.

The type of catapult in general use in this country was first introduced and developed at the R.A.E., and its general principles were described in the paper. Then followed an historical section dealing with the early catapult, and credit was given to the United States for being first to realise the importance of the catapult for launching aircraft from the deck of a battleship. As a result of tests made in America it was decided that the powder-drive type scored over the compressed air type, in that a more rapid succession of launches could be effected, the time spent in re-charging the air bottles after each launch being saved.

In this country during the war a certain amount of experimentation was done, but it was not until after the war, in the autumn of 1922, that a real development programme was instituted. At that time two designs were put in hand, one undertaken by the late Mr. Falkland Carey and the other by the R.A.E. The Carey type followed the lines of the American catapults, in that the motion of the ram was communicated to the launching carriage by a series of wire ropes and pulleys. The R.A.E. design differed entirely from other types in its actuating mechanism, and dispensed with the use of wire ropes and pulleys, the launching carriage being attached to the front ram of a series of telescopic rams. The rams were all pushed forward simultaneously when compressed air was admitted into the main cylinder and behind the rearmost ram.

In May, 1928, experiments were begun at Farnborough, using cordite in place of compressed air. The cordite was fired in the usual way by either a percussion or electric firing tube. The first cordite-operated catapult was built by MacTaggart Scott, and was installed in H.M.S. York.

In the R.A.E. type of catapult the ram and trolley are housed, when not in use, at the rear end of the structure, so that the forward end is then quite unencumbered. Advantage was taken of this fact in a later type by so designing the structure that the forward half swung on hinges and lay alongside the rear half, thereby economising deck space. In this way a catapult with an overall length of 82 ft. could be folded to occupy but 44 ft. in the stowed

position. Mr. Salmon suggested in the paper that the hinged forward portion of the catapult structure might well be utilised as a crane for hoisting an aircraft on board, and showed a sketch design for such an arrangement. This would avoid the necessity for a separate crane.

The paper then referred to the MacTaggart-Scott Admiralty extending structure type of catapult described and illustrated in FLIGHT of February 27, 1931. Yet another Admiralty type was built by Ransome & Rapier, and its novel feature was the sliding structure, which was made to travel along the main structure by means of a single ram and wire ropes over pulleys, the launching carriage travelling forward on the sliding structure.

The Farnborough aeroplane field catapult was described next. As our readers will know from previous descriptions in FLIGHT, this is an arrangement for launching heavy aircraft from aerodromes of limited size, and consists of compressed air engines of the spheroidal type driving a winding drum, around which is wound the launching wire rope which passes to the aircraft via a pulley anchored to the ground some distance ahead of the aircraft. This field catapult is transportable, and is able to launch aircraft weighing up to 18,000 lb. at a speed of 60 m.p.h. in a run of 120 ft. The compressed air engines are capable of developing a total of 4,000 h.p. at a speed of 2,500 r.p.m. Adaptations for the suggested use on aircraft carriers were shown.

The paper concluded with the view that the catapult must inevitably take its place in the normal equipment of aerodromes used as bases for the long-distance commercial aircraft of the future.

Capt. C. E. Turle, R.N., Director of Naval Air Division, Admiralty, did not like the launching trolley very much. The weight of the superstructure caused difficulty in retarding. For launching seaplanes he preferred to use attachments at float steps. The hinged catapult supported a large structure on a small pivot, and was objectionable on that account. With reference to the propelling agent, he thought cordite had not added to the flexibility of catapults, since the charge had to be adjusted for different weights of aircraft, and on that score they might have done better by keeping to compressed air.

Mr. Griffith Brewer (referred to by Mr. Fairey as the first Englishman to be catapulted into the air) recalled the Wright Brothers' use of catapult launching in the early days, and thought the falling weight might give the type of acceleration desired. He had recently seen an aircraft launched by catapult from the German liner *Bremen*, but in this country we did not seem to be doing much with civil catapulting.

Mr. F. Duncanson thought it desirable to increase the height of the superstructure so as to get the points of application on the aircraft nearer to the c.g. of the aeroplane. The aircraft designer would also like increased length of run. He thought aerodrome launching should be encouraged, but not at the expense of load per horsepower.

Com. Sharman, R.N., gave a brief impression of catapult launches in which he had been a passenger a few days ago. The first time he bent forward and felt himself being hurled up at an angle of 45 degrees. The second time he sat up normally, and felt no ill effects.

Maj. Bumpus referred to the large air bottles shown, and asked how many launches they gave. He would also like to know what frequency of launch could be obtained by the Farnborough field catapult if used on carriers.

Col. Sempill foresaw the use of catapult launching for undercarriage-less aeroplanes in the future.

In replying, Mr. Pritchard said that he agreed that the weight of the superstructure (trolley) caused difficulty in retarding. But the aircraft could not afford to carry any extra launching weight. On the relative advantages of cordite and air propellants, cordite scored by being more easily handled, and particularly where a number of launches had to be made in a short time.

The number of air bottles shown were for one launch only, and the frequency of launch that could be attained with the field type catapult and a well trained crew on board an aircraft carrier should be at the rate of one launch every 4 or 5 min. (This obviously is much too slow for war conditions.—Ed.)

He agreed with Col. Sempill that in future, given perfect engine reliability, the aircraft without undercarriage might be launched by catapult, but would have to make use of some form of arrester gear on landing.

No. 605 (County of Warwick) (Bomber) Squadron

Presentation of Esher Trophy

THE County of Warwick Bomber Squadron has now won the Esher Trophy three times. This trophy was presented by Lord Esher to be competed for by squadrons of the Auxiliary Air Force, and marks are given for efficiency in all the functions which an Auxiliary Squadron has to perform. Efficiency in bombing counts most highly, but marks are also given for formation flying, piloting ability and landings on a mark, gunnery, rigging, engine fitting, air photography (mosaic and pin-pointing), and general squadron efficiency. It was in 1927 that the County of Warwick Squadron first entered for the trophy and won it straight away. Its second success was in 1930, and this was repeated in 1931.

This striking success was brought to the notice of Air Marshal H.R.H. the Prince of Wales, and he consented to mark his appreciation of the excellent work of the squadron by presenting the trophy himself when he visited Birmingham on the occasion of the British Industries Fair. That fair, the well-advertised B.I.F., which foreign visitors seem to think must be connected in some way with the national delicacy known as "Rosbiff," is being held in some of the hangars on Castle Bromwich aerodrome, and the Prince's visit was fixed for Thursday, February 25.

Sqd. Ldr. J. A. C. Wright, A.F.C., T.D., the C.O. of the squadron, Flt. Lt. S. D. Macdonald, D.F.C., the Adjutant, and the officers of the squadron prepared to receive a number of friends on the occasion. The invitations, however, were issued by no less a person than Air Marshal Sir Geoffrey Salmond, K.C.B., K.C.M.G., D.S.O., the Air Officer Commanding-in-Chief Air Defence of Great Britain. The C-in-C., of course, was there in person, and so was the A.O.C. No. 1 Air Defence Group, namely, Air Commodore W. F. MacNeece Foster, C.B.E., D.S.O., D.F.C., who was accompanied by his chief staff officer, Wing Com. A. H. Orlebar, A.F.C. These distinguished officers met the officers of the squadron, and all of them doubtless felt proud to be introduced to (among others) Flt. Lt. C. L. Knox, V.C. Flt. Lt. Knox did not win his Victoria Cross in the air. He was an R.E. officer during the great war, and he performed one of the most gallant actions ever performed since the Sappers and Sikh Pioneers blew in the Kashmir Gate of Delhi, when John Nicholson's men stormed the city during the Mutiny. During the retreat from Mons the Sappers had to blow up all bridges as soon as the British troops had crossed them. On one occasion the German columns were hard on the heels of the retreating British, and the work of demolition had to be carried out in all haste. One fuse did not light, and the bridge seemed open to the Germans; but Knox went back personally and fired it with his own hand. The odds were heavily against his escaping with his life, but the masonry of the destroyed bridge fell all round him without crushing him, and the King rewarded this most gallant and self-sacrificing action with the world-famous reward "For Valour." Flt. Lt. Knox is now in business in Birmingham, and commands a flight in the County of Warwick Squadron.

The Prince flew over to Lord Ednam's place on the Wednesday, and next day motored to Castle Bromwich and visited the B.I.F. Soon after 5 p.m. the squadron and its guests assembled in a hangar. At the back of the dais was a "Wapiti," and on a table on the dais stood the graceful trophy, a bronze figure of Hermes

(not Cirrus-Hermes), or, if Latin is preferred, of Mercury (not the Bristol Mercury).

The guard of honour was marched into the hangar, and attracted particular attention by its smartness. All the men were Auxiliaries, but war medals were plentiful among them, and there was at least one Military Medal and one Long Service and Good Conduct Medal. The trumpeters took post on the right. It was somewhat surprising to learn that the airmen of the squadron do not by any means all come from the factories in Birmingham. Such of them as are mechanics by trade usually prefer to do work of another description in the squadron. There are many Corporation employees among the men, shopmen, clerks and various others. The officers, too, come from all sorts of callings. Among them the professions of solicitor, doctor, coal-owner, dentist, and maltster are represented.

At 6 p.m. the guard of honour was called to attention, and as the Prince, attended by his equerry, Maj. J. R. Aird, entered the hangar, the Royal Salute was given, and the trumpets sounded a flourish. The Prince was, of course, in mufti, wearing a fur-lined overcoat, and he looked rather tired. After inspecting the guard of honour, and speaking a few words to men who had decorations and medals, he ascended the platform and made a short speech in his usual clear tones. He said that it gave him great pleasure to come that day and present the Esher Trophy to the County of Warwick Squadron of the Royal Air Force. He had visited the squadron before and had enjoyed its hospitality. He said that it was a great achievement to have won the trophy three times, and twice in succession. He alluded to the part played by the squadron and the Auxiliary Air Force in various displays at Hendon and in air exercises. He then presented the trophy to Sqd. Ldr. Wright and congratulated the squadron most heartily. Sqd. Ldr. Wright called for three cheers for the Prince, and the brief but very pleasant little ceremony was over. The Prince and the whole party then adjourned to the drill hall. Doubtless he there met Sir Henry Fairfax-Lucy, Chairman of the Warwick Territorial Association, and Lord Bearsted, M.C., the Hon. Air Commodore of the squadron.

F. A. DE V. R.



Air Marshal H.R.H. the Prince of Wales presenting the Esher Trophy to Sqd. Ldr. J. A. C. Wright, A.F.C., T.D., C.O. No. 605 (County of Warwick) (Bomber) Squadron. Behind from left to right:—Air Marshal Sir Geoffrey Salmond, Sir H. Fairfax-Lucy, and on the right Air Commodore MacNeece Foster, C.B.E., D.S.O., D.F.C.

THE ROYAL AIR FORCE

London Gazette, February 23, 1932.

General Duties Branch

The following are granted short service commns. as Pilot Officers on probation with effect and with seny. of Feb. 11 :—The Hon. G. R. Ward (Flying Officer, Auxiliary Air Force); the Hon. E. F. Ward (Pilot Officer, Auxiliary Air Force).

The following Pilot Officers are promoted to the rank of Flying Officer :—I. C. Bird (Sept. 30, 1931); C. F. Birks, B. W. E. R. Bonsey, J. A. S. Brown, G. Burdick, G. G. Stead (Jan. 12); R. B. Dashper, C. E. Littler, T. U. C. Shirley, J. Whitehead, W. R. Wills-Sandford (Jan. 26); R. G. Harman, H. W. Mermagen (Jan. 27). Flight Lieut. W. Elliot, D.F.C., is promoted to rank of Squadron Leader (Feb. 1). (*Gazette*, Feb. 2, of Flight Lieutenants promoted to Squadron Leader to be amended to include this name between those of J. S. Chick, M.C., A.F.C., and S. L. G. Pope, D.F.C., A.F.C.).

Squadron Leader W. Thomas, M.C., is placed on retired list (Feb. 23); the short service commn. of Pilot Officer on probation L. G. Brooks is terminated on cessation of duty (Feb. 24).

Stores Branch

Flying Officer on probation E. E. Copper is confirmed in rank (Jan. 5); Pilot Officer on probation E. G. Moore is confirmed in rank and promoted to rank of Flying Officer (Jan. 9).

Dental Branch

The following relinquish their temporary commns. on return to Army duty (Jan. 3):—Squadron Leader A. A. McMullan, L.D.S., R.F.P.S.(G.), Major Army Dental Corps; Flight Lieut. R. E. Edwards, L.D.S., Captain, Army Dental Corps.

Chaplains Branch

The Rev. H. Thomas, B.A., is promoted to relative rank of Wing Commander (Feb. 2).

ROYAL AIR FORCE RESERVE
RESERVE OF AIR FORCE OFFICERS

General Duties Branch

Lieut. Commdr. G. L. Gandy, R.N. (retired), is granted a commn. in Class A as a Flight Lieut. (Jan. 6); Flight Lieut. T. Courtis is granted a commn. in this rank in Class C on relinquishing his commn. in the Auxiliary Air Force (Nov. 9, 1931); Flying Officer E. G. L. Russell is transferred from Class A to Class C (Feb. 18); Flying Officer L. G. Gray is transferred from Class C to Class A (Feb. 5); Flying Officer J. W. New is transferred from Class C to Class B (Stores Branch) (Sept. 7, 1931); Flight Lieut. C. Pilkington, A.F.C., is transferred from Class A to Class B (Stores Branch), with effect from Oct. 24, 1931, and with seny. of Sept. 7, 1931. (Substituted for *Gazette*, Oct. 27, 1931); Flying Officer G. A. Kysh relinquishes his commn. on completion of service (Oct. 1, 1931).

AUXILIARY AIR FORCE

General Duties Branch

No. 600 (CITY OF LONDON) (BOMBER) SQUADRON.—Flight Lieut. T. Courtis relinquishes his commn. on completion of service and is granted a commn. in Class C of the Reserve of Air Force Officers (Nov. 9, 1931).

No. 601 (COUNTY OF LONDON) (BOMBER) SQUADRON.—The following relinquish their commns. on appointment to Short Service Commns. in R.A.F. (Feb. 11):—Flying Officer the Hon. G. R. Ward, Pilot Officer the Hon. E. F. Ward.

No. 603 (CITY OF GLASGOW) (BOMBER) SQUADRON.—C. M. B. Renshaw is granted a commn. as Pilot Officer (Jan. 30).

No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—W. B. Beale is granted a commn. as Flying Officer (Jan. 10). The following are granted commns as Pilot Officers (Jan. 11):—W. M. Churchill, G. F. M. Wright.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Squadron Leaders: E. A. Fawcus, to Central Flying School, Wittering, 13.2.32, for Flying refresher course. C. St. Noble, to H.Q., Inland Area, Stanmore, 8.2.32, for Engineer Staff duties, vice Wing Com. E. R. L. Corballis, D.S.O., O.B.E.

Flight Lieutenants: F. H. Shales, to No. 2 Armoured Car Co., Ramleh, 26.1.32. E. S. C. Davis, A.F.C., to Central Flying School, Wittering, 12.2.32. R. S. Bruce, M.B.E., to R.A.F. Base, Singapore, 12.2.32. C. N. H. Bilney, to Air Armament School, Eastchurch, 15.2.32. F. W. Long, to No. 8 (B. Sqdn., Aden, 12.2.32. E. H. M. David, to Armoured Car Section, Aden, 12.2.32. D. M. Fleming, to Aeroplane and Armament Experimental Estab. Martlesham Heath, 23.1.32. A. C. H. Sharp, to No. 1 (Indian) Group H.Q., Peshawar, India, 23.1.32. E. E. Fallick, to Station H.Q., Netheravon, 12.2.32.

Flying Officers: H. R. Black, to No. 8 (B) Sqdn., Aden, 12.2.32. H. L. McCulloch, to Station Flight, Andover, 13.2.32. J. G. Elton, to No. 36 (T.B.) Sqdn., Singapore, 12.2.32. R. B. Wardman, to No. 5 (A.C.) Sqdn., Quetta, 12.2.32. G. F. K. Donaldson, to No. 20 (A.C.) Sqdn., Peshawar, 12.2.32. R. B. Harrison, to No. 20 (A.C.) Sqdn., Peshawar, 12.2.32. R. J. W. Barnett, to No. 5 (A.C.) Sqdn., Quetta, 12.2.32. G. W. P. Grant, to No. 36 (T.B.) Sqdn., Singapore, 12.2.32. D. B. D. Field, to No. 8 (B) Sqdn., Aden, 12.2.32. S. J. H. Carr, D.F.C., to R.A.F. Base, Calshot, 12.2.32. C. M. Champion de Crespigny, to Air Armament School, Eastchurch, 24.1.32. W. B. Bailey, to School of Army Co-operation, Old Sarum, 5.2.32. E. B. Grace, to R.A.F. Base, Calshot, 12.2.32. J. C. Atkins, to No. 11 (B) Sqdn., Risalpur, India, 23.1.32. N. Kirkham, to No. 39 (B) Sqdn., Risalpur, India, 23.1.32. E. M. Morris, to A. and A.E.E. No. 15 (B) Sqdn., Martlesham Heath, 18.2.32.

Pilot Officers: J. W. C. More, to No. 403 (F.F.) Flight, Far East, 12.2.32. R. F. Smith, to No. 31 (A.C.) Sqdn., Quetta, 12.2.32. I. G. Ross, to No. 205 (F.B.) Sqdn., Singapore, 12.2.32. W. F. Hilchie, to No. 205 (F.B.) Sqdn., Singapore, 12.2.32. R. Hanson, to No. 39 (B) Sqdn., Risalpur, India, 23.1.32. The Hon. G. R. Ward and the Hon. E. F. Ward, both to No. 57 (B) Sqdn. Netheravon, 11.2.32, on appointment to a short service commn. as Pilot Officer (on probation).

Stores Branch

Squadron Leaders: J. H. Dale to R.A.F. Packing Depot, Sealand, 8.2.32, pending taking over Command. J. V. Mason to Air Ministry (D. of E.) 8.2.32, for Stores Staff duties vice F/Lt. T. G. Bowler.

Flight Lieutenant: R. G. Sims to No. 1 Stores Depot, Kidbrooke, 9.2.32. **Flying Officers:** W. F. Langdon to No. 1 Stores Depot, Kidbrooke, 4.2.32, H. J. Hunter to Station H.Q., Upper Heyford, 8.2.32. P. H. Wilcox to Admin. Wing, Halton, 8.2.32. P. V. Edwards to No. 1 (Indian Wing) Station Kohat, 12.1.32.

Squadron Leaders: F. W. Arthurton to H.Q. Aden Command, 29.1.32, for duty as Command Accountant vice S/Ldr. A. W. P. Phillips, O.B.E. K. R. Money, O.B.E., to R.A.F. Depot, Uxbridge, 25.1.32, on transfer to Home Estab. W. R. Westcombe to R.A.F. Depot, Uxbridge, 21.1.32, on transfer to Home Estab.

Flight Lieutenant H. J. Titherington to No. 2 Flying Training School, Digby, 25.1.32.

Flying Officer W. S. Calder to R.A.F. Record Office, Ruislip, 4.2.32. **Wing Commander** R. W. Thomas, O.B.E., to No. 1 Stores Depot, Kidbrooke, to command, 10.2.32.

Flight Lieutenants: C. H. Masters, to H.Q. Inland Area, Stanmore, 9.2.32. T. G. Bowler, to No. 1 Air Defence Group H.Q., 8.2.32. H. T. H. Copeland, to H.Q., Cranwell, 12.2.32. W. Bourne, to Aircraft Depot, Karachi, India, 12.2.32. R. T. Rich, to R.A.F. Base, Calshot, 15.2.32.

Accountants Branch

Wing Commander H. F. Fuller, to Home Aircraft Depot, Henlow, 12.2.32, for Accountant duties.

Flight Lieutenants: L. de L. Leder, to Station H.Q., Heliopolis, 25.1.32.

J. M. Hopkins, to R.A.F. Training Base, Leuchars, 12.2.32. **Flying Officer** F. Rigby, to Station H.Q., Kenley, 16.2.32.

Medical Branch

Squadron Leader J. K. R. Landells, to R.A.F. Hospital, Aden, 12.2.32, for duty as Med. Officer, vice Sqd. Ldr. P. A. Hall.

Flight Lieutenant F. B. C. L. B. Crawford, to Central Med. Estab., 18.2.32.

Dental Branch

Flying Officers: P. J. C. Keane, to No. 1 Sch. of Technical Training, (Apps.), Halton, 13.2.32. E. Sharp, to R.A.F. Depot, Uxbridge, 17.2.32.

Chaplains Branch

Rev. J. Lavin, to R.A.F. Depot, Aboukir, Middle East, 11.11.31, for duty as Chaplain (Roman Catholic).

Re-equipping the Royal Air Force

As far as can be foreseen at present, the following are the approximate dates on which new types of aircraft will be supplied during the next few months:—

| Type. | Unit. | In replacement of | Approximate date. |
|--------------------|---------------------------------|-----------------------|---|
| "Fury" | No. 1 (F) Squadron | "Siskin" IIIA | February, 1932 (<i>postponed from December, 1931</i>). |
| "Gordon" | No. 6 Squadron | "Bristol" Fighter | To be shipped during March-April, 1932. |
| "Moth" (Gipsy III) | Kai Tak and Singapore | — | To be shipped during February, 1932 (<i>postponed from December, 1931</i>). |
| "Nimrod" | Base Training Squadron, Gosport | — | January, 1932 (<i>postponed from November-December, 1931</i>). |
| | Base Training Squadron Leuchars | "Flycatcher" (I I.E.) | |

| | | | |
|------------|-----------------------|--------------|---|
| "Victoria" | Central Flying School | — | January, 1932 (<i>postponed from November, 1931</i>). |
| "Virginia" | No. 502 Squadron | "Hyderabad." | Complete during January, 1932. |

Re-equipment of R.A.F. Units during September-December, 1931 quarter:—

| | | |
|----------------|----|--|
| No. 4 Squadron | .. | Re-equipped with "Audax" from "Atlas A.C." |
| No. 39 " | .. | Re-equipment with "Hart" from "Wapiti" completed. |
| No. 41 " | .. | Re-equipped with "Bulldog" from "Siskin." |
| No. 500 " | .. | Equipment with "Virginia" completed. |
| No. 502 " | .. | Re-equipment with "Virginia" from "Hyderabad" commenced. |

Long Service and Good Conduct Medal.

THE Long Service and Good Conduct Medal has been awarded to the undermentioned airmen:—
S.M.1. Spencer, L., S.M.2. Bates, W. G., S.M.2. Cousins, E. A., S.M.2. Lyon, H. A., F./Sgt. Barnes, H., F./Sgt. Carroll, T., F./Sgt. Condon, C. H., F./Sgt. Harrington, F., F./Sgt. Herrick, R., F./Sgt. Kelly, M., F./Sgt. King, E. E., F./Sgt. Knight, E. A., F./Sgt. McCleery, W. R., F./Sgt. McFarlane, J., F./Sgt. Pegg, S. R., F./Sgt. Plummer, J., Sgt. Harrison, A., Sgt. Ottaway, S. J., Sgt. Rankin, R., Sgt. Taylor, H., Cpl. Arnold, E. J., L.A.C. Evans, T.

AIR POST STAMPS

By DOUGLAS ARMSTRONG

First South African Air Post

The event of the past month so far as air post collecting is concerned has been the arrival in London of the first official air mail brought from the Cape under the Imperial Airways schedule, nine days late on account of an accident to the mail aeroplane near Broken Hill in N. Rhodesia. Contrary to inspired reports, no special stamps were provided by the Union Government for the occasion, nor would they seem to have been necessary, there being already in existence a 1s. South African air stamp to prepay the air mail fee. Souvenir envelopes were employed, however, in infinite variety.

First and foremost as regards numbers was the Springbok decorated envelope supplied by Imperial Airways for use on the first flights in either direction. A somewhat similar design, printed in the same colours, viz., orange and blue, was published by a certain Johannesburg stamp dealer, representing an aeroplane in flight together with the heads of a lion, giraffe and springbok enclosed in circular frames. These emanated principally from places in the Transvaal. Envelopes of large size decorated with a vignette of an aeroplane flying between Durban and London, printed in blue, were created by the Publicity Association of that city in collaboration with the Philatelic Society of Natal, and carried the inscription "First Air Post—Durban to London (via Capetown), January, 1932." Letters from Southern Rhodesia were also enclosed in long, bluish-grey souvenir envelopes bearing a portrait of the late Cecil Rhodes and appropriate inscriptions in blue imprint. In addition these were struck with a special cachet in violet ink reading "First Official Air Mail."

Colombian Air Stamps now Official

After many years the semi-official air post stamps previously issued in the Republic of Colombia for purposes of the air mail service maintained by the Sociedad Colombo Alemana des Transportes Aereos have achieved an official status. Since the beginning of the year they have appeared with the words "Correo Aereo" added in the form of an overprint and constitute a regular Government issue. As such they must now find their way into the standard catalogue lists, and in view of the controversy that has previously raged round them, it will be interesting to see whether the cataloguers will open their pages to the previous series. All stamps lacking this imprint become invalid for air post purposes on and after April 30, 1932.

New Egyptian Air Stamps

The subject of the design of the new series of air post stamps now in course of preparation by the printing department of the Survey of Egypt in Cairo depicts an air liner, reputed to be the *Hannibal*, passing over the Pyramids. It will appear upon each of the nine denominations comprised in the set, viz., 2, 3, 4, 5, 10, 15, 50, 100 and 200 millimes, the public release of which is momentarily anticipated.

Air Post Collectors' Guide

Collectors of air post material, as distinct from those who collect merely air mail stamps, have been handicapped in the past to some extent by the lack of a reliable catalogue and guide to the hobby in the English language and priced in sterling currency. This want has now been admirably filled by the publication of the first edition of a Priced Catalogue of Airmail Stamps and Air Posts of the World by the well-known firm of D. Field (price 10s.). It makes a fairly bulky volume of some 388 pages, excellently illustrated, wherein are listed and described in chronological order not only all adhesive stamps, both official and semi-official, that have ever been issued in connection with the air post service in any part of the world, but also the cachet, postmarks and other markings applied to letters flown upon experimental, inaugural or other outstanding mail flights from the Siege of Paris down to the present day. The method of arrangement will appeal strongly to those collectors who desire to make their collections illustrate the rise and progress of aerial navigation in the service of the post, of which the book is, in fact, a veritable epitome.

For air stamp collectors pure and simple a new edition of the Stanley Gibbons Air Stamp Catalogue has just made its appearance, in handy pocket form, price 2s. 6d. Air post stamps issued under Government auspices alone are included, no account being taken of semi-official vignettes or flown covers.

PUBLICATIONS RECEIVED

Ich fliege mit und ohne Motor. By Günter Groenhoff. Frankfurter Societäts-Druckerei G.m.b.H., Frankfurt a. Main. Price RM. 1.20.

Economic Conditions in the Netherlands East Indies, September, 1931. Report by H. A. N. Bluett. Department of Overseas Trade: No. 501. London: H.M. Stationery Office, W.C.2. Price 3s. 6d. net. Post free, 3s. 9d.

Annual Report of the Board of Regents of the Smithsonian Institution for the Year 1930. Superintendent of Documents, Washington, D.C., U.S.A. Price \$2.00.

Catalogue

British Industries Fair, Birmingham, February 22 to March 4, 1932. The British Industries Fair, 95, New Street, Birmingham.

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NEW COMPANIES REGISTERED

VASEYS, LTD.—Capital £2,000, in £1 shares. Engineers, manufacturers of and dealers in airships, aeroplanes, waterplanes, motor cars, etc. Directors: R. O. Vasey (permanent), "Dunkeld," Scarborough; H. Middlebrook, 22a, Duchy Road, Harrogate; and N. Middlebrook, 7, Leighton House, Scarborough. Solicitors: Wm. and E. H. Middlebrook, Pearl Chambers, Leeds.

SEAGULL SCIENTIFIC SPORTS COMPANY, LTD.—Capital £3,000, in £1 shares. Manufacturers and importers of and dealers in model aeroplanes, toys, games, etc. Permanent directors: A. P. N. Peyton, 18, Park Road, Southend-on-Sea; F. J. Morgan, 1,127, London Road, Leigh-on-Sea; H. Smith, 51, Birchwood Drive, Leigh-on-Sea. Solicitors: E. Edwards and Son, 105, Leigh Road, Leigh-on-Sea.

MODERN AIRWAYS, LTD., 27, Beaufort Gardens, S.W. Capital £1,000, in £1 shares. Objects: to establish and carry on any business relating to aircraft and aviation, organisers of aerial pageants and displays, instructors of flying and aeronautical engineering, etc. Directors: M. A. A. R. Pryce and S. Caplowe, both of 27, Beaufort Gardens, S.W.; J. I. Pickering, 14, Trebovir Road, S.W.

"INSULEX," LTD., 10a, Trinity Road, S.W.17.—Capital £100, in 1s. shares. Acquiring the trade mark "Insulex," and to carry on the business of manufacturers of and dealers in sparking plugs, magnetos, etc., for ignition purposes, and materials relating to electrical insulation, motor cars, aeroplanes, etc. Directors: J. E. Jowitt, Ascot Lodge, Walton-on-Thames merchant; G. H. Hadder, 3, Merton Mansions, S.W.17, engineer.

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AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1930

Published March 3, 1932

- 23,343. R. CHILLINGWORTH. Rotating-wing systems, propellers, or lifting-screws for aircraft. (366,540.)
33,049. DORNIER-METALLBAUTEN GES. and C. DORNIER. Framework for floating bodies. (366,564.)
33,050. DORNIER-METALLBAUTEN GES. and C. DORNIER. Flotation bodies. (366,565.)

APPLIED FOR IN 1931

Published March 3, 1932

- 4,561. F. T. MEE. Model aeroplanes. (366,733.)
6,425. ECLIPSE AVIATION CORPN. Engine-starting mechanism. (366,752.)
7,953. VICKERS (AVIATION), LTD. (N. BREARLEY). Means for moving aeroplanes by manual power. (366,769.)
9,115. SIR W. G. ARMSTRONG, WHITWORTH AIRCRAFT, LTD., and J. LLOYD. Aircraft control surface members. (366,784.)
9,369. H. JUNKERS. Packing of pistons of i.c. engines. (366,785.)
10,283. HANNOVERSCHE MASCHINENBAU-AKT.-GES. VORM. G. EGESTORFF, and L. SCHARGORODSKY. Pre-combustion chambers for Diesel engines. (366,795.)

APPLIED FOR IN 1932

Published March 3, 1932

- 2,648. R. CHILLINGWORTH. Rotating-wing systems, propellers, or lifting-screws for aircraft. (366,603.)

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